ENGINEERING NEWS-RECORD

my ponton bridge-building trucks like these are moving forward to span the Rhine.

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The CRANE THAT KNOWS *what goes on* 300 FEET UNDER WATER

The story of an electric system that speeds and safeguards crane operation at Shasta

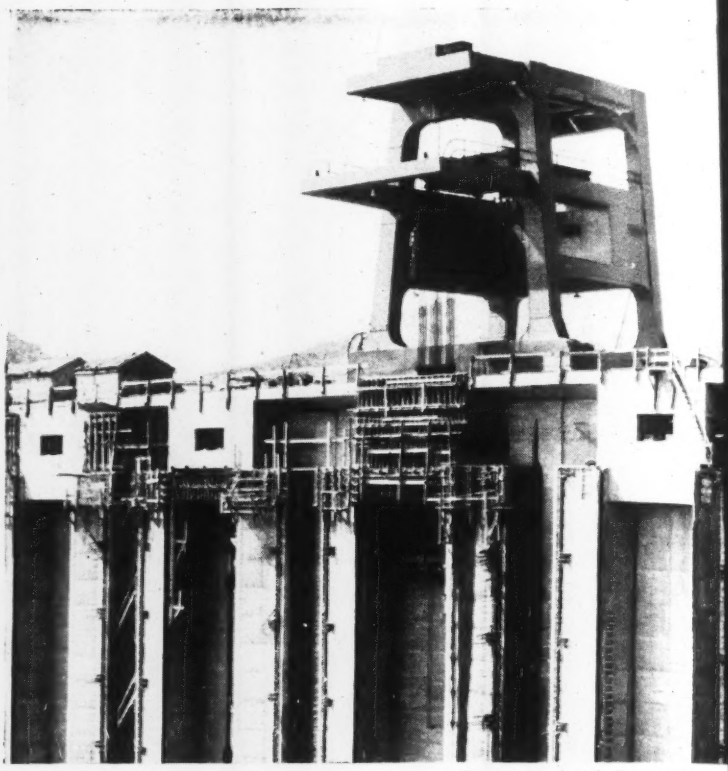
By: J. P. Smith, Industrial Engineering Divisions, General Electric Company

THE heavy lifting at Shasta Dam is performed by a specially designed outdoor gantry-type crane, which travels on tracks embedded in the top of the dam, and across a bridge spanning the spillway. Its major use is in the installation and maintenance of the penstock coaster gates, hydraulic cylinders, and stems at the penstock openings. It will also be used to lower coaster gates to stop the flow of water in any of the outlet conduits below the spillway section. The Star Iron & Steel Company designed and built this unusual crane.

Meets Unusual Requirements

When lifting the gates, the crane must be able to hoist a rated load of 250,000 pounds at five feet per minute. However, the maximum pull that the crane can exert is limited to 300,000 pounds—to safeguard the bridge over the spillway, which is designed for a 150-ton maximum load on the crane. Thus, if a gate should jam in its guides, because of a wedging action or foreign material, even though it may be 300 feet under water, the pull exerted by the crane is limited to the safe maximum of 150 tons.

While lowering the outlet coaster gates into place, the load on the crane may be increased from 105,000 to 220,000 pounds because of hydraulic drawdown. This occurs only if the conduit valve should stick in the open position and make it necessary to lower the coaster gate with the water flowing. The gate is usually lowered at full speed but if hydraulic drawdown increases the effective load on the crane, its speed is reduced automatically without attention from the operator.



(Photo courtesy U.S. Bureau of Reclamation)

Upstream view of Shasta Dam showing 125-ton gantry crane installing unit No. 3 penstock coaster gate. Unit No. 4 coaster-gate hoist and gate stems at left.

An auxiliary hoist operating on a trolley (see picture) is designed to handle gate parts and to install stop logs weighing not more than 25 tons—maximum lift, 295 feet.

Selection of the electric equipment for this crane presented an interesting problem. Several crane motions were involved:

1. Hoisting and lowering by main hoist
2. Hoisting and lowering by auxiliary hoist
3. Movement of auxiliary hoist trolley
4. Travel of entire crane on track of 27-foot gage across dam—partly curved and partly straight

The desirability of smooth, speedy operation, within safety limits for both travel and hoist motions, called for use of a variable-voltage system, with our new Maxspeed drive for the hoist.

A transfer drum-switch arrangement enables the operator to select the single m-g set and control for each motion at a time.

The Maxspeed hoist drive, providing unique speed-controlling features, accelerates the work of gate handling because light loads are handled rapidly, while heavy loads are handled slowly. For safety, the system enables the crane to handle the 52-ton outlet coaster gates 300 feet under water as carefully as though they were being lifted from a dry-land platform in full view of the operator.

The Maxspeed drive, is applicable to whirley-type, hammerhead, and other cranes where accurate, speedy handling of loads of varying weights must be done frequently. General Electric Company, Schenectady 5, N. Y.

GENERAL ELECTRIC

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BUY WAR BONDS

The Week In Engineering and Construction

NGINEERING NEWS-RECORD • MARCH 29, 1945 • VOLUME 134 • NUMBER 13

Engineers make history at Remagen bridgehead

Fight to keep seriously damaged railroad bridge in service while pontoon crossings are being built under constant attack by Germans

By Waldo G. Bowman
Editor, Engineering News-Record
(By Radiogram)

PARIS, MAR. 24, 1945—Despite its quent use in communiques, "accord- to plan" is a phrase that seldom plies to military operations. For ex- ple, take our first crossing of the ine at Remagen. For months, studies d been made of methods of forcing ssings of the Rhine, of building dges to support the crossings, and expanding the bridgeheads into real mping-off places for Berlin and the art of Germany. Specific locations d specific bridges figured in the ans, but never was there mention of e town of Remagen about halfway tween Bonn and Coblenz, although modern double-track railroad bridge ossed the river there. This was in e Rhine gorge, and few places in its -mile length from Bonn upstream to ngen were fit for an assault crossing d the necessary subsequent bridging d supply.

That at least is the way the planners e said to have figured it out, and there e few second guessers even now who n be found to disagreee with them. et our first bridgehead on the east- n bank of the Rhine was at Remagen d it was bought at a bargain price. hanks to the quick decision and ourageous action of an Engineer officer urned tank commander, which resulted the capture of the railroad bridge n Mar. 7 at 4 p. m. and the pushing ross in a matter of a few hours of ough armor and troops to hold it.

Moreover, by the evening of the sec- nd day the Remagen bridgehead was substantial and firmly established ne, thanks to on-the-cuff planning and igh pressure field work by the Corps ngineer and the troops under his con- trol. By that time he had ferries operating, his first pontoon bridge was finished, he was well along on a second, and in addition he was getting underway major repairs to the steelwork of the railroad bridge which had been badly damaged by a demolition charge.

Drama at Remagen

For the following ten days the little town of Remagen on the Rhine in Germany was the scene of as highly sustained an Engineer drama as is apt to come out of this war. It included, in addition to the tragically inevitable expenditure of lives to get the floating bridges across, a brave but futile fight to save a great steel bridge from crashing into the river. Its actors and its actions deserve to be remembered.

Consider what happened. Combat Command B of the Ninth Armored Division, after taking Bonn on the drive from the Roer to the Rhine, had been given the job of moving south to clear the west bank of the Rhine up to Coblenz. Passing Remagen about 2:30 p. m. on Mar. 7, it was noticed that the three-span continuous truss railroad bridge there was still intact, although it was learned from a prisoner that 4:30 p. m. had been fixed as the time to set off charges that would demolish it.

With only momentary hesitation and despite the fact that a crossing of the Rhine at Remagen was no part of any tactical or strategical plan in existence, the commanding general issued a famous order: "Block the demolitions,

(*Continued on next page*)

U. S. Signal Corps photo

Special trucks expedite Rhine bridge crossings

A special steel carrier body and crane mounted on an army truck, carrying pontoons, steel saddles and treadways, was used in maneuvers last year in the erection of a 330-ft. pontoon bridge in the short time interval of 3 hr. and 2 min. (ENR April 13, 1944, vol. p. 518). Equipment such as this has been rushed to the Rhine.

cross the bridge, and capture it for our use." Within an hour the order had been carried out and the bridge was ours. German troops in the towers on the near side of the bridge were killed with accurate shellfire and a party of troops crossed the structure to dispose of the far-side guards with hand grenades and Garand rifles.

Serious damage to bridge

Either the surprise was too much for the Germans and they failed to set off their demolitions, or the charges were defective, for only one exploded, albeit the results of this were serious. All members but one that framed into the shoe of the upstream truss on the east side being severed. However, disregarding the obvious danger of collapse of the bridge, the general sent his tanks across as fast as they became available, and by the time the Germans awoke to their danger the Americans had a bridgehead east of the Rhine and were well on their way to expanding an unscheduled skirmish into a major campaign.

The general responsible for the brilliantly aggressive military tactics that permitted us to cross the Rhine at Remagen was Brig. Gen. William M. Hoge. He is the officer who had charge of building the Alcan Highway in the early days of the war and who later was in command of the special Engineer brigades that stormed the Normandy beaches and then operated the supply facilities there so effectively during and after the invasion.

Now an armored force general, but still an engineer in thought and actions, Bill Hoge did not for a minute miss the significance of capturing a bridge across the Rhine whether anyone had planned it that way or not. The bridge was there and he took it. Perhaps another general with a different background would have done the same thing, perhaps he wouldn't. But certain it is that no other general would have found among the Engineers whose job it was to make the bridgehead secure with operable river crossings, dozens of his close friends and former subordinates on the Alcan Highway. They began with Col. F. R. Lyons, Engineer of 3rd Corps and his deputy, Lt. Col. E. J. Stann, and went right down to the troops of some of the Engineer units that were called in to help.

This meeting of old construction campaign companions from halfway around the world at a vital bridge site on the Rhine was fittingly supplemented by another coincidence that gives the operation a special flavor. Colonel Lyons was present at the dedication ceremonies for the Remagen Bridge in 1918 and subsequently, as local commander of the Army of Occupation, he had the structure in his charge so that he became intimately familiar with it and with the surrounding terrain.

Such a providential coincidence could only have been improved upon if Colonel Lyons had had available in 1945 a copy of the plans and stress sheets for the Remagen Bridge that he had carefully secured and forwarded to Washington in 1918. He had also forwarded at the same time a plan for demolishing the Remagen Bridge in case of military necessity, which it is just as well was not available in Europe in 1945, for the Germans might have found it more effective than their own.

Bridgehead engineering

All in all, the Remagen bridgehead started out under unusual Engineer direction, and before it could be rated as complete and safe, it had required everything in the way of ability and courage that several hundred Engineer officers and troops could muster.

Its engineering story unfolded in three chapters: Establishment of ferries, construction of pontoon bridge and repair of the railroad bridge. All operations were going on simultaneously, but the first two were completed by the evening of the third day, while the last came to an end on the afternoon of the ninth day when the bridge collapsed.

Colonel Lyons received word at 4 p. m. on Mar. 7 that we had captured the bridge. His obvious job was to get supplemental crossing facilities established, he began an immediate search of his memory and maps for suitable sites, at the same time putting in motion machinery that could get equipment and materials to the bridgehead at the earliest possible moment.

Twelve hours later, aided by what reconnaissance could be done in the dark, a plan was ready and field work was begun. Most readily established crossings are ferries, which require only equipment and the cutting of approach ramps from the banks to the water's edge. Both of these requirements were met, for Ferry No. 1, using pontoons as floats, was operating by daylight of Mar. 8. Twenty-four hours later, other ferries were operating, including pontoons and amphibious ducks. Enemy opposition was slight and shelling was intermittent and inaccurate because of the small dispersed targets afforded by the ferries.

But when the treadway-pontoon

(*Continued on page 12*)

Press Assn. photo

All members framing into the upstream shoe on the east pier of the Remagen Bridge (just over the dormer of the house in the foreground) except the vertical were severed, by demolition charges placed by the Germans, a 10-ft. section of the lower chord of the main arch being completely gone. This picture was taken at the time of construction.

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lexican water treaty attacked y former President Hoover

gineer who had a large part in settling interstate questions ating to the Colorado River finds new treaty defective

t week, as debate on the Mexican r Treaty was resumed by the Sen- ormer President Herbert Hoover, letter read before that body, se- attacked the compact. He saw ss discord with Mexico because reaty provisions with respect to olorado River were considered to three cardinal defects. Certain e reservations would be necessary, Hoover said, to eliminate what he d "uncertainties enough to fill rbitration courts for many years."

Three defects found

e letter was read by Senator es of New Jersey, who was re- d as attempting to rally Repub- members against the treaty. In ssing the treaty Mr. Hoover wrote: re are three serious objections to reaty in its present form, all of h seem capable of remedy before treaty is ratified but will cause ss trouble if not. These relate to llocation of water, the construction works, and administrative provi- ."

regard to the yearly allocation of ,000 acre-ft. of Colorado River to Mexico, Mr. Hoover character- the clause entitling the U. S. to nish deliveries only if our own mptive use is curtailed by extraor- y drought as inviting acrimonious te. He also claimed that to supply co a minimum of 1,500,000 acre-ft. y would result in serious draw- of the active storage above Boul- Dam during a long dry period of al years, also that to deliver some s storage to Mexico would be con- to the aim of the Boulder Canyon ct Act, in accordance with which der Dam was built. Clarification of reaty as to the quality of the water co is to receive was also seen nec- y.

Opposed to diversion dam

ter discussing the diversion works e constructed in accordance with treaty, Mr. Hoover stated: "The bined effect is to make possible the of several million acre-feet per not merely 1,500,000 acre-ft., of waters conserved by the Boulder on project. That is to say, the y alone makes possible the in- sed Mexican use of the temporary rican surplus, the fear of which is the impelling reason for making any treaty at all.

"The treaty obligation laid on Mexico to construct a diversion dam wholly or partly on American soil within five years should be exactly reversed, by a prohibition against construction of any such works. No dam should be built so long as the Mexican allocation can be delivered through the All-American Canal. Adequate capacity was built into these works for this very purpose, and 1,500,000 acre-ft. can be delivered through the All-American Canal to Mexico for many years without damaging any American interest in that canal."

Too much power

Finally the treaty was attacked by Mr. Hoover on the ground that too much power is given the American and Mexican officials who are to carry out provisions of the treaty. In regard to this point Mr. Hoover wrote: "If the Senate fails to retain, by reservation, the power of Congress over the commissioners created by this treaty, and the large funds they will control, it will be setting a precedent for the all-important postwar settlements."

Much argument both for and against the treaty in its present form followed the reading of the letter. In this debate it was revealed by Sen. Connally of Texas, who is chairman of the Foreign Relations Committee, which approved the treaty without recommending amendments, that certain reservations to the treaty were being prepared. These reservations are expected to be disclosed by the committee in the next few days.

Early approval desired

Many members of the Senate have expressed their hope that Congress will approve this treaty at an early date in view of the peace conference opening April 25 in San Francisco. It is felt that failure to ratify the treaty would result in criticism that the Senate is incapable of coming to a two-thirds agreement on international matters.

A summary of the treaty was published in *ENR* Jan. 25, vol. p. 123. The favorable report of the Senate Foreign Relations Committee will be found in *ENR* March 1, vol. p. 285.

Wide World photo

Aqueduct to provide more water for Mexico City

A new aqueduct, to carry water enough for a city of 10,000,000 persons, is being rushed to completion to relieve Mexico City's acute water shortage. The $8,000,000 project, which will be finished in about a year, will carry water approximately 35 miles over valleys and through mountain tunnels from springs in the region of Toluca to the capital. The aqueduct also will provide water to bring 25,000 acres under cultivation, and for the generation of hydroelectric power needed in Mexico City. The project is being carried out mostly by hand labor, which engineers say is cheaper than machines. A huge brick and stone pipeline will be laid through a hillside.

Engineers Rebuild European Railroads

U. S. Army Engineers have rehabilitated 7,000 miles of vital European railroads to provide our armies with supply routes to the Western Front, up to the end of January, according to an announcement from the Communications Zone. Some 5,000 miles of double-track and more than 2,000 miles of single-track have been restored to operational use in France and Belgium. This 7,000-mile stretch includes all major rail networks in Allied territory. Work is under way on secondary lines to be linked with the main routes.

The Engineers have reconstructed 172 major bridges destroyed by bombing or enemy demolition and are at work on 27 other major bridges.

Outstanding among the railroad projects was the opening of the line from Normandy to Lemans within a 48-hr. period. This was required by General Patton in order to permit exploitation of the break through beyond the Avranches-Coutances funnel.

Under normal conditions, the reconstruction of this line would have required months. The Germans, without any pressing deadline and merely on the basis of the amount of damage caused by Allied air forces, had given it up as a hopeless task.

To complete the job on time, three additional regiments of Engineers were sent to assist the two originally assigned to the project. Heavy construction equipment and materials from all adjacent areas were rushed to the vital rail line. Working in hastily-erected tents along the roadbed, Engineer officers quickly designed seven bridges needed to open the important supply route.

Rebuild seven bridges in 48 hr.

Undertaking the reconstruction job previously abandoned as hopeless by the Nazis, the Engineers rebuilt the seven demolished railroad bridges, laid totally new main lines in three railway yards, improvised water towers for locomotives, and had supply trains full of gasoline, ammunition, and rations moving down in support of Patton's army within the 48-hr. deadline (*ENR* Nov. 30, 1944, vol. p. 678).

In the push beyond Paris, the Engineers had to reconstruct the main railroad bridges around the perimeter of the French capital, giving first priority to the Paris-Tergnier line which would provide the Allies with a thorough supply route to the German border. The main Paris-Liege line was later put in operation, and the Paris-Tergnier line was turned over to the French, still remaining under U. S. Army Transportation Corps control, however, for priority freight. Similarly, numerous other lines no longer of military importance have been handed over to French authorities for operation.

The Engineers have followed closely behind the forward elements of the armies in restoring railroads. In at least one instance, when they needed steel girders to repair a bridge near the front in order that an advance could continue, they penetrated German lines and captured needed material from the enemy. Captain Nicholas G. Cotsones, Chicago led a squad of Engineers under cover of darkness, smuggling a motor crane through territory dominated by German guns. They picked up the girders, brought them back and built bridges with them.

Reconstruction of the European railroad system by the Engineers has been limited to immediate military requirements. Most repairs, especially bridge

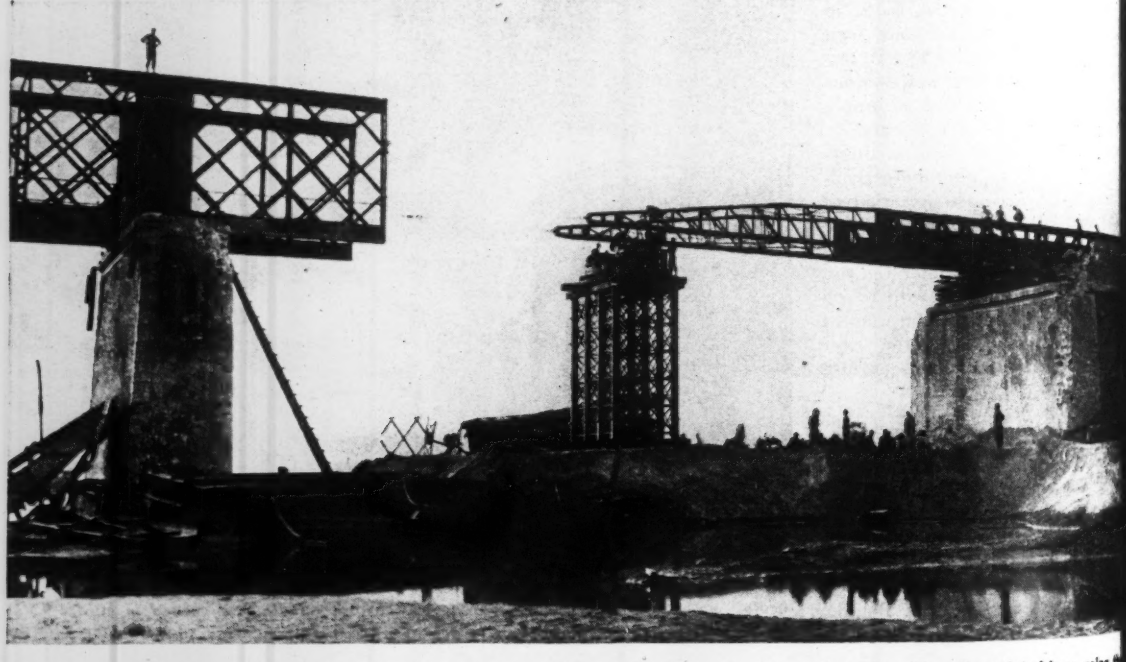
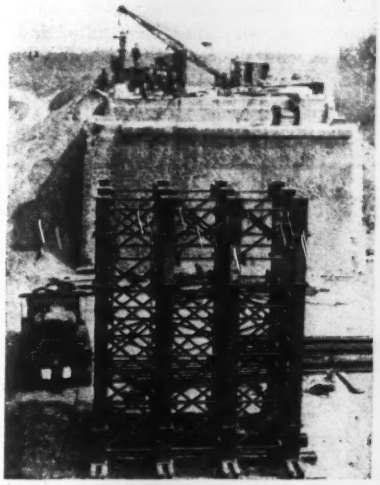


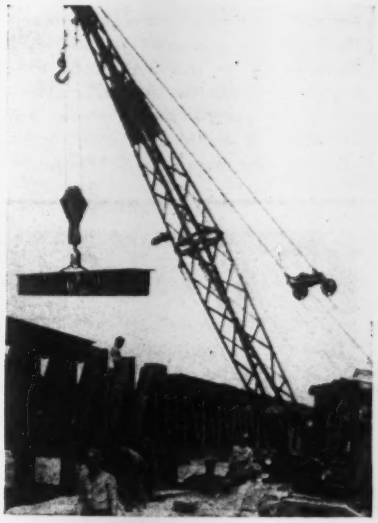
Fig. 1. Typical of the construction problems overcome by Army Engineers is the restoration of railroad bridges using the unit construction railroad trusses. The launching nose of one of these structures is shown just as it reached receiving rollers on an intermediate pier.

2. This war casualty was a French through girder railroad bridge having three spans of about 200 ft. each. The construction railway bridge is being assembled on bank at the right.

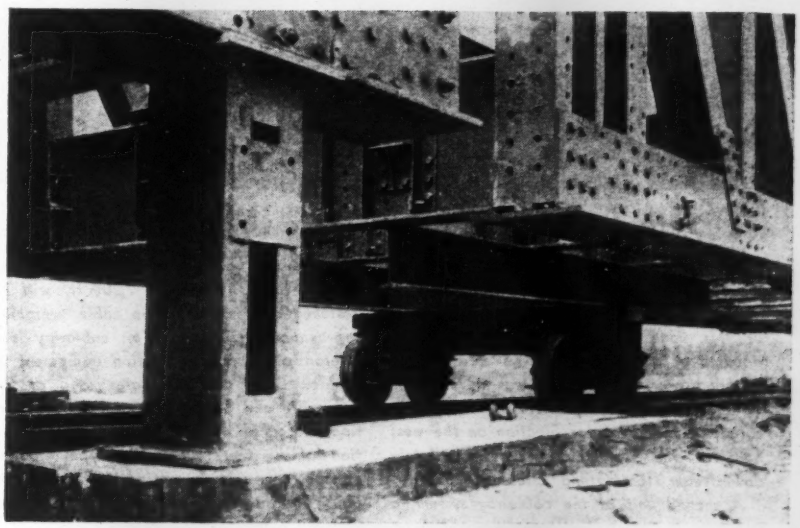
been of temporary nature, designed swift completion and suitable for y supply needs. U. S. Army Engi- rs say the reconstructed lines can be d for years, but permanent recon- ction will nevertheless have to be lertaken after the war.

The Engineers have been greatly as- ed by a force of French civilian kers, according to Maj. Gen. C. R. oore of Harrisonburg, Virginia, Chief gineer, European Theater of Opera- ns, who has directed the reconstruc- n program. General Moore's plan- g staff for railroad rehabilitation is ded by Lt. Col. R. A. Radford of shington, D. C., formerly with the high Valley; Maj. H. S. Booth of Jose, Calif., formerly with the U. Bureau of Public roads; Capt. H. E. d of South Norwalk, Conn., formerly engineer for the Potomac Electric wer Company; and Capt. E. H. Olson Omaha, Nebraska, who served on the ineering staffs of several western roads.





3. A light standard unit steel trestle r, as illustrated in the picture at the center, was erected by a crane at midway in the gap, while the unit dge was assembled just beyond the tments. At the right center a truck ne is placing a 15-ft. top chord tion.



4. The unit construction railroad dge is assembled on trestle stools, can be seen at right in Fig. 3 and his close-up view and then is trans- red to trolleys. For launching over gap, spans are joined end to end d pushed forward on trolleys.

Government regulation of construction industry suggested by Ruml

Stabilization of construction activity is possible by timing of public works coupled with some federal regulations

Public works can be used to stabilize the construction industry, but public works cannot be the cure-all for sustaining business activity in periods of depression, said Beardsley Ruml, chairman of Federal Reserve Bank of New York and author of the "pay-as-you-go" plan for income taxes, in an address before the Chicago Building Congress last week. He then outlined reasons why it would be desirable to reorganize the entire industry under some form of governmental regulation.

Experience gained during the 1930's proved that public works alone are inadequate as a means of stabilizing our entire economy through the fluctuations of the nation's business cycles. In addition to the magnitude of the job and administrative difficulties involved in programming public works activities, it would be highly undesirable to bring hundreds of thousands of men from other walks of life into the construction industry and to force them out as an offset to the free play of economic forces elsewhere in our business system, Mr. Ruml said.

Sees construction boom

Mr. Ruml expressed confidence in the stabilization of the construction industry through a well-planned and properly timed public works program but, said he, "It is likely that immediately following the war and for some years thereafter, we shall have a considerable boom in private, residential building. This boom, together with industrial demands and public works which cannot be postponed, may be more than sufficient to carry the construction industry beyond the level that we may have agreed to maintain as a long-time standard normal."

If this boom in construction should occur, even though a substantial [illegible] of unemployment existed throughout the country, it would be wiser to hold some of the public works for periods in which they are more urgently needed.

The construction industry, which is intimately involved with public works expenditures, is, in general, a costly and wasteful industry, according to Mr. Ruml. Chief reason for this is the feasts and famines of seasonal and cyclical demand to which it is subjected. Accordingly, the industry has tried to adjust its practices in order to survive under such adverse conditions. This has led to the establishment of a price structure high enough to tide the industry over seasons of little activity.

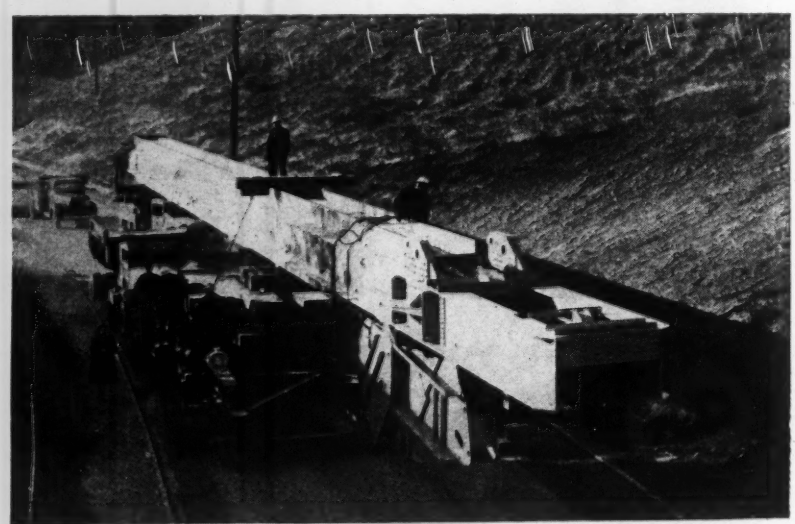
In view of these high-pricing practices and other restrictive measures adopted by the construction industry, Mr. Ruml advocated a Congressional investigation of the industry as a whole with recommendation that would lead to its reorganization, and possibly some governmental regulation.

"Such an investigation should be of the same dignity and competence as that of the National Monetary Commission following which the Federal Reserve System was established," he said. "It should be found that the industry requires certain immunities under the Sherman Act and state anti-trust laws it should be subjected to corresponding regulation. If it was found that some of the restrictive practices of the industry should be continued, even under a stabilized production, these practices should be sanctioned by law and supervised by an appropriate regulatory body," he said.

Construction of public concern

Since the construction industry is looked to for at least 8 percent of the national product, it certainly is a matter of national concern, asserted Mr. Ruml. With the industry stabilized and public works expenditures and regulated by a government agency, it would be a different industry from what it is today. It would still be highly competitive, however, with more emphasis being placed on introducing innovations and economies as a means of securing construction contracts.

In commenting on the benefits of a well-planned and properly timed post-war public works program, Mr. Ruml declared that first of all, stability of employment should eliminate the uncertainty and fears that make the industry irresponsible, always fighting for its life. Second, construction costs should be reduced sharply while the earnings of workers and profits of contractors should increase. And third, the total public construction program should be well planned, he concluded.



Bureau of Reclamation photo

Safe descent for 90-ton cableway headtower

The combined braking power of a fleet of heavy-duty trucks made possible a safe descent over a 12-percent grade highway for this huge 90-ton cableway headtower. Mounted on a 200-ton, multi-wheeled trailer, the headtower, 138 ft. long, was moved from the assembly building, where it was fabricated, to the point for erection on the west bank of the Columbia River immediately downstream from Grand Coulee Dam.

A second unit of the cableway system, a traveling tailtower, has been assembled on the opposite bank of the river. Between the two towers, a span of 2,300 ft., will be stretched a 3 in. dia. main cable, weighing approximately 30 tons. This cableway is a veteran piece of construction equipment of Boulder Dam, and was later used at the Bonneville and Shasta dams. Upon completion, the cableway is to be used for the erection of a steel, submersible-type, floating caisson, necessary in making maintenance repairs to the concrete spillway bucket of Grand Coulee Dam.

WASHINGTON HIGHLIGHTS

eplacement of the surface marble of lower 150 ft. of the Washington nument was proposed by the Wash- on National Monument Society at ecent annual meeting. This part of monument was erected between 1848 1854 and is discolored and some- t deteriorated. A committee was ed to determine the cost and how the k might best be handled. A plan pre- sly proposed to cut back the outer 6 of stone and replace it with a veneer better marble has been set aside tem- arily. This work was estimated to $500,000.

Considerably less water than normal irrigation and power generation will available this year in western states. ineers of the U. S. Geological Survey ort. Stream flow in the West has n above normal the past month, it is believed that such increases have occurred, where not stored. be to the detriment of runoff dur- the irrigation season. Precipita- during the winter months—Decem- to February—has been subnormal the West except in northern New xico, southern Colorado, eastern oming, and south-central Montana. the other hand, temperatures have n above normal throughout the st. This combination has tended to uce the accumulation of snow in mountains, snow surveys revealing ow normal accumulation in most as and indicating that prospects irrigation supplies are not espe- lly favorable.

The recent heavy precipitation in the io River basin has relieved the ere water shortage reported earlier the year by numerous Ohio munic- lities (*ENR* Feb. 8, vol. p. 161), the S. Geological Survey reports. The ns have also improved groundwater nditions.

The strong desire of numerous con- ssmen to create authorities similar the Tennessee Valley Authority con- ues to be revealed. Recently a bill .R. 2450) was introduced in the use to create an Ohio Valley Author- . Four days later a similar bill . 737) seeking to create a Savannah lley Authority was introduced in the nate. How the Senate bill may be ndled was revealed a few days ago en the Senate voted to refer the issouri Valley Authority Bill to three ferent committees in succession. The measure will go to the Commerce Committee for consideration of its flood control and navigation features, next to the Reclamation and Irrigation Committee for consideration of reclamation and irrigation provisions, and finally to the Agriculture Committee for consideration of all other features, particularly its "TVA" provisions. Each committee will have the bill for 60 days.

BRIEF NEWS

Governor Dwight Green of Illinois has before him a 25-year plan for the development of a "capitol center" to include many million dollars worth of new buildings in the area surrounding the present Illinois statehouse at Springfield.

The plans call for the erection of a $2,000,000 state museum; a building to house the departments of public health and public works; squaring of the present L-shaped centennial building with the addition of south and west wings; doubling the size of the present archives building, and also the doubling of the armory and office building just north of the capitol. It would be necessary for the state to purchase six city blocks now occupied by apartments, office buildings and dwellings.

A proposed pumping project, taking water from Boulder Dam's Lake Mead, to reclaim 15,000 acres of desert land near Las Vegas, Nev., will be studied as soon as engineering personnel is available, it was announced recently by E. A. Moritz, regional director of reclamation and director of power at Boulder Dam.

Two large California bridges, the Carquinez and Antioch spans east of San Francisco Bay, will become toll free next Sept. 1, it is announced by C. H. Purcell, state director of public works. Both bridges, built in 1923 under a franchise issued by Contra Costa County, were purchased by the State Toll Bridge Authority in 1940 from the American Toll Bridge Co. for $5,500,000. Monthly gross toll revenue from the bridges is about $120,000, nearly double pre-war receipts, according to Mr. Purcell.

The waterfront boulevard of Traverse City, Mich., has a place high on the list of the State Highway Commission's postwar projects, according to Highway Commissioner Charles Ziegler.

"Our survey for this project is almost completed," Mr. Ziegler said, "and the engineering crew is now working out a way to enter the city from the south to reach the proposed boulevard." Another early project is the completion of the direct route north from Grand Rapids to Traverse City.

The announcement of the Michigan State Stream Control Commission that it plans to file suit restraining the city of Fremont and the Gerber Products Co. from continuing to pollute Fremont Lake and Darling Creek has caused the city to renew its effort to abate the nuisance before the effective date of the order, June 1, 1945. Most of the difficulty is due to the waste from the city's main industry. The city recently outlined a sewage disposal improvement program to cost $300,000. Experiments are now being carired out at the sewage disposal plant under the supervision of engineers.

The City Commission of Waco, Tex., has adopted a plan for municipal financing submitted to it by the Waco Postwar Planning Committee. This provides for a million dollar bond issue, to be paid in twelve years; a 25 percent increase in water rates; a garbage or sewer tax, or both; and a minimum property tax of $2.50 per $100 valuation, the surplus from the levying of this tax to pay for the retirement of bonds.

The commissioners prefer a sewer tax to a garbage tax as the more practical method and this is under study. Bonds will be issued in the amounts needed to finance postwar projects at the time they are designated and started.

According to Mayor Leland Lacy, Port Arthur, Tex., has been assured by district WPB officials that it will be granted a priority for a $110,000 pumping station to drain the city's west side.

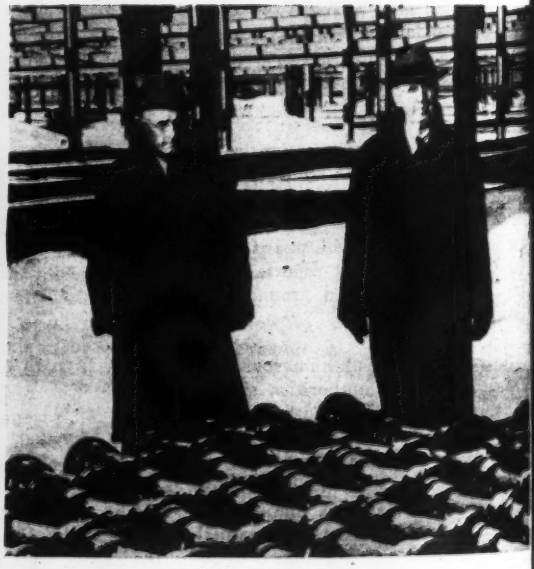
City Counselor Joseph F. Holland of St. Louis, Mo., has advised Milton M. Kinsey, president of the board of public service, that the city has the legal right to expend money remaining from a 1943 bond issue for engineering studies of the proposed plan for the removal of the elevated tracks of the Terminal Railroad Association in the Jefferson National Expansion Memorial area on the Mississippi River south of the Eads Bridge. There is an unexpended balance of $216,000 of a $1,000,000 bond issue voted in 1934 to finance the elimination and separation of railroad grade crossings and the reconstruction of bridges, viaducts and tunnels. The Terminal Railroad Association is to advance 50 percent of the cost of preparing plans for the elimination of the tracks and the construction of a new double track railroad tunnel under Third Street.

MEN AT WORK

First-hand information was obtained by HAROLD W. RICHARDSON, western editor, Engineering News-Record (left) from PROF. H. T. WYLY, Department of Civil Engineering, Northwestern University, on current investigations of compression elements in structural steel columns or truss chords. Relative proportions between web and flanges of a built-up, laced compression member are determined by charting 28 simultaneous deformations with a resistance-type electric wire strain gage while the test specimen is under various loads in the University's 1,000,000-lb. capacity testing machine. Deformations can be read to within one-millionth of an inch and unit stresses to within 30 psi.

WESLEY R. NELSON, now director of the Bureau of Reclamation's Region 5, with headquarters at Amarillo, Texas, is an old timer with the bureau, having joined that organization 23 years ago as a levelman on the Grand Valley Project in Colorado. Before going to Amarillo in October, 1943, he was chief of the engineering division in the Washington, D. C., office of the bureau.

Soon to start his 42nd year with the water department, District of Columbia, GEORGE T. CURTIS is now in charge of the Anacostia Pumping Station in Washington. He joined the department in April, 1904, and since that time has supervised many changes in the water treatment and distribution methods.



It was a cold day in December when JOHN R. BAYLIS, engineer of water purification, department of public works, Chicago (left) stopped to show C. G. RICHARDSON, vice-president of Builders-Providence, Providence, R. I., a few of the 4,320 special cast iron underdrain tees for Chicago's new South District Filtration Plant.

MEN AND JOBS

P. McWhorter, principal highway neer of the Public Roads Adminis- on of the Fed- Works Agency ichmond, Va., been ap- ted division neer in charge the PRA di- ion office at tgomery, Ala., mas H. Mac- ald, commis- r of public s, has announced. Mr. McWhorter direct federal highway activity in ama, Georgia, Florida, Mississippi Tennessee, with headquarters at tgomery. He succeeds Charles D. d, who died Feb. 13.

r. McWhorter has been in charge of Public Roads office at Richmond August, 1939, directing the federal way program in Virginia. Prior to time or from January, 1934, to ust, 1939, he was senior highway neer in the PRA district office at tgomery. Before joining PRA, Mr. Whorter was state highway engineer Georgia from February, 1930, to uary, 1934. He had previously been loyed, for a number of years, as an neer in the state highway depart- t.

native of Georgia, Mr. McWhorter graduated in engineering at the ersity of Georgia in 1909. He ed the U. S. Army Engineers shortly r college, and served overseas as a nd lieutenant with the 57th Engi- s Division of the American Expedi- ary Forces in 1918 and 1919.

isiting the U. S. for a detailed study low-cost highway construction. **D. oltorton,** engineer with the public ks department of the Burma ernment, is traveling extensively ugh the southeastern and gulf es. He came to this country after a month study of secondary road truction in Great Britain. The spe- objective of Mr. Wooltorton's re- ch is solution of the problems im- ed by Burma soil conditions and -tired vehicle traffic using that ntry's main roads.

ndrew George Graham, recently engineer of Nanaimo, B. C., has n named supervisor under the pro- cial bureau of postwar reconstruc- tion at Victoria. Mr. Graham is a native of South Africa, and a graduate of the Royal Technical College of Glasgow, Scotland.

Glen N. Cox, head of the department of hydraulic engineering, Louisiana State University, has been assigned to the state's Department of Public Works for six months. He is serving as chief of the hydraulic section, and is engaged in making flood control and drainage investigations, and in the design of hydraulic structures.

Forrest L. Park, an engineer for the Trinity Improvement Association at Dallas, Tex., has returned after two years' absence, during which he was with the Civil Aeronautics Administration and the War Department as civilian engineer in charge of constructing airfields and camps in Texas. Mr. Park will aid the association in planning postwar soil conservation and flood control work for which $32.000,000 was recently made available by Congress. **Carl J. Jeffries** has also returned to help in this work after two years in war work. He is a marine engineer and an authority on barge and towboat construction and inland waterway navigation.

Robt. Johnson, Knoxville, Ia., has been appointed county engineer for Hardin County, at Eldora. He succeeds **C. A. Boeke,** who resigned to become city engineer at Fort Dodge.

Capt. John L. Kemple, resident engineer in charge of construction on the Norfork Dam, has been assigned recently to Fort Belvoir, Va. A graduate of Lafayette College, all of his engineering experience has been with the U. S. Engineers, first serving as inspector in 1929, at Memphis, Tenn., on levee and revetment construction. Later he was transferred to the Little Rock district office, where he was office engineer for the operations division and assistant area engineer, before being placed in charge at Norfork Dam. Information concerning his present duties is not available.

Succeeding Captain **Kemple** as resident engineer is **Roy F. House,** formerly construction chief and assistant resident engineer on the Norfork Dam. A graduate of the Georgia School of Technology, Mr. House has had much experience with the U. S. Engineers. As a junior engineer with the Memphis district office, he was assigned to construction of levees and concrete floodwalls and was later transferred to the Tucumcari, N. M., engineer district, where he worked on the Conchas Dam and was placed in charge of the concrete laboratory in that district. In 1938 he was transferred to Little Rock, where he was made head of the concrete laboratory.

Capt. Max Alperin is base sanitary officer at Avon Park Army Air Field, Fla. He attended Cooper Union and received his B.S. in 1924. He also attended Polytechnic Institute of Brooklyn, and Columbia University.

Chas. A. Reed, office engineer in the Oakland, Calif., city street department for the last 28 years, has assumed the posts of assistant city engineer and ex-officio assistant superintendent of streets, succeeding Mel Auerbach who died Feb. 5 after 50 years of service.

L. K. White, since 1928 assistant city engineer at Wichita, Kan., has been promoted to city engineer.

C. J. Desbaillets, chief engineer of the Toronto, Ont., Department of Public Works, has been awarded the Fuller Trophy by the Canadian section of the American Water Works Association. It is awarded to the engineer who has made the greatest contribution to the advancement of waterworks in the dominion during the preceding year.

Porter J. Preston, retired supervising engineer of the Colorado-Big Thompson Project, at 74 now daily works as volunteer chairman of the gasoline panel of the Denver, Colo., War Price and Rationing Board.

The promotion to major of **Warren Garvey,** former personnel manager for

Parsons, Klapp, Brinckerhoff & Douglas, consulting engineers, New York City, was announced recently by Brig. Gen. Morris Berman, Commanding General of the Base Air Depot Area, Air Service Command. A veteran of 18 months service in the European Theater of Operations, Major Garvey currently serves as executive officer of a large storage and experimental station of the Air Service Command.

Industrial and transportation needs of China placed at $1.8 billion

F. E. A. report indicates need of $200,000,000 for industrial plants, $165,000,000 for road machinery, $500,000,000 for railroads

An expenditure of $1.8 billion will be necessary if China's transportation system is to be modernized, the Foreign Economic Administration announced last week after a 1½-yr. study made at China's request.

Needed transportation improvements and the purchase of automotive equipment is estimated to cost $900,000,000 exclusive of labor and engineering services. Included is $165,000,000 for purchase of machinery to improve 20,000 mi. of existing roads as all-weather highways and $225,000,000 for purchase from abroad of 75,000 trucks of 2½-ton capacity, 10,000 truck chassis for buses, 700 tow trucks, and a large supply of repair parts.

The additional $500,000,000 is considered necessary for the purchase of equipment and materials for improvement of 5,000 mi. of existing line, double tracking of 1,000 mi. and construction of 6,000 mi. of new line and four large repair shops. In addition, it would be necessary to buy 1,500 locomotives, 22,800 freight cars, and 860 passenger cars.

Improvement of China's waterway system was discussed by the report, but no estimate was made as to the amount of construction work required. Neither is any money for airport construction included.

It is pointed out that considerable work toward improvement of China's transportation system may be done as part of the war program. Numerous airfields have already been built, and U. S. Army Engineers are now improving 250 miles of highway between Kunming, China terminus of the Burma Road, and Kweiyang, about 200 miles south of Chungking. Much other road work, as well as delivery of considerable railroad equipment may be done as part of the war program. However, the transportation construction remaining to be done after the war is expected to be great.

Many new plants required

As a major step in the industrialization of China expenditure of another $900,000,000 is recommended. About $200,000,000 is needed to construct 953 industrial plants, and $700,000,000 for the purchase and installation of equipment and machinery. Five general types of plants are recommended: (1) Mining and metallurgical structures, including smelters and steel mills; (2) Chemical and basic processing facilities; (3) Factories for producing such products as textiles, construction equipment and electric appliances; (4) Food processing plants like canneries, fish freezing facilities, and grain elevators; and (5) Power projects for the types of plants just mentioned.

The power facilities to be built would consist almost entirely of steam plants. Only three hydro-electric projects, for which plans are now well advanced, would be completed, because this type of project would take much longer to construct, and since China has coal for operating steam facilities. A total installed capacity of 900,000 kw. to supply 3.6 billion kwh. yearly is seen necessary.

Looked upon as a logical plan for the first five postwar years, this power program should not be confused with the extensive hydro development seen feasible by John L. Savage, Bureau of Reclamation engineer loaned to the U. S. State Department and recently returned from China after several months studying power possibilities there. Although not discussed in the F.E.A. report, this work is considered by some engineers in Washington as more worthwhile as part of a later program rather than for immediate construction after the war ends. The largest project recommended by Savage is construction of a 750-ft. high dam on the lower Yangtze to provide water for ninety-six 116,000 k.w. generators. Calling for 15,000,000 cu. yd. of concrete, this project would require six to seven years of work before the first generators could go into operation. Savage also considers feasible the construction of a dam 800 ft. high on a tributary of the Yangtze.

Financing not studied

The extensive report prepared by F. E. A. does not discuss the problem of financing the large program outlined, as the aim was to determine China's industrial and transportation needs, leaving the problem of financing for subsequent study. Some employees of the U. S. government who have spent many years in China look upon this task as extremely difficult, if not impossible. Others believe the problem can be overcome once the war is won and greater unity within China is obtained, making long-term loans by U. S. firms more attractive.

If it is possible to finance the work, extensive outside technical aid will be needed.

U. S. Navy photo

Only woman officer in Navy's C. E. Corps

The Civil Engineer Corps of the Navy, composed since 1867 of highly trained engineers who must meet strict technical eligibility requirements, now has a woman officer as a full-fledged member of this branch of the Naval Service. She is Lieut. (j. g.) Kathleen F. Lux.

Lieut. Lux holds a civil engineering degree from Purdue University, where she was graduated in 1942. Her special field is sanitary engineering. On duty now in the Bureau of Yards and Docks, she is an assistant in the office of Commander C. P. Conrad, Civil Engineer Corps, U.S.N.R., director of the construction department.

Bonnet Carre spillway protecting New Orleans

Opening of ten bays of the Bonnet Carre spillway, above New Orleans, was effected by the U. S. Army Engineers on March 23 following the forecast of the U. S. Weather Bureau that the Mississippi river would reach a stage of 20.6 ft. on the Carrollton gauge between April 7 and April 11. The purpose of the spillway, which connects the river with tidewater Lake Ponchartrain, is to prevent the river from passing the 20-ft. stage at Carrollton (New Orleans). The initial flow of water through the weir was estimated at 20,000 cfs. Additional openings were expected.

Completed in 1931, the $13,000,000 spillway was operated once before, in 1937, at which time it spilled water from the river through a 47-day period, diverting 215,000 cfs. The spillway extends 6 miles from river to lake. When opened, the river gauge at the spillway read 22.2 ft. and the Carrollton gauge 18.6 ft.

News of the Engineering Schools

grant of $7,500 has been announced the Rockefeller Foundation to Colorado School of Mines for the opment of an intensive course in sh for foreign engineering stu- The teaching of English includes tific and technical terms and is in- d for foreign students before their llment in engineering curricula. For n weeks the student will spend hours a day in instruction and tice. The latest visual and sound oducing equipment is used to pro- fluency in English conversation. ng and writing.

ppointment of Cherry Logan Emer- vice president of Robert & Co., nta engineers, to be dean of engi- ng at Georgia Tech was approved h 14 by the Board of Regents of Georgia University System. The post new one. President Blake R. Van has also announced the creation of other engineering posts. They be filled by: Robert Irving acher as dean of the graduate di- n; Lt. Col. Thomas Evans, pro- r of civil engineering; and Lt. Col. k F. Groseclose, professor of in- rial engineering and head of that rtment.

A. Moyer, associate professor of engineering at Iowa State College, s, Ia., has been elected a member of executive committee of the Highway arch Board of the National Acad- of Science. Moyer has been at Iowa many years as an instructor in way engineering in the civil engi- ng department.

of. Frank Kerekes, of the depart- of civil engineering, has received the Iowa Engineering Society the Dunlap award for outstanding vement in the field of engineering. e award, named for a former pro- r of engineering at Iowa Univer- was presented to Kerekes for his as chairman of the state building committee. The report submitted e Iowa legislature explains the need uniform building law in the state. rn in Budapest, Hungary, in 1896, kes received his degree in civil neering at Columbia University in and went to Iowa State the same

ar needs have brought about an al- complete halt in the education of rank scientists and engineers, with result that it will take from five to ten years to replenish the ranks of technical leadership asserts James K. Finch, acting dean of Columbia University's School of Engineering. To help solve this problem, he said, Columbia has made plans for the restoration of the normal, pre-war program of study in engineering. Dean Finch explained that the accelerated three-term program would be continued until late in 1946.

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Uniform wage scale for N. C. highway contracts

The Federal Wage Adjustment Board has reaffirmed a uniform wage scale proposed by the North Carolina Highway Commission, applying to employees of contractors fulfilling contracts with the commission. The scale, which begins at 50 cents an hour for common labor and goes up for various types of skilled work, was approved by the board last December, but the International Union of Operating Engineers (AFL) protested the scale as being too low.

According to Acting Chairman Charles Ross, the commission proposed the uniform wage scale in order to obtain competitive bidding for highway contracts, the wages paid by various highway contractors in the state varying greatly. Those in war manufacturing areas increased sharply prior to the inauguration of wage stabilization in October, 1942, while those in other areas remained on the same level. Under wage stabilization, Mr. Ross pointed out, contractors who would not increase their wage scales to meet that offered by other contractors could not obtain labor and could not enter competitive bids on highway projects.

Under the new arrangement contractors may elect to pay either the wages as frozen in October, 1942, or on the basis of the newly approved uniform scale.

Engineers honored for meritorious civilian service

Pictured above is the occasion when Howard H. Mullins and John T. Pennington, engineers, were awarded the emblem for Meritorious Civilian Service at Fort Belvoir, Va., on Feb. 21.

The citation for Mr. Mullins told how, as principal engineer of bridge design for four years, he had trained a group of men to be efficient bridge designers. "The speed with which he has developed and designed urgently needed structures has been remarkable. • • • His work has been outstanding, and the specifications prepared by him are now in general use for military bridge design throughout the Corps of Engineers."

Regarding Mr. Pennington, it is said: "His ingenuity and tireless study have been responsible for the improvement of existing photomapping equipment. He has also demonstrated a high degree of administrative ability in the development of that work."

Left to right above, are: Col. W. J. Matteson, Mrs. Pennington, Mr. Pennington, Mr. Mullins, Brig. Gen. W. N. Schulz, president of the Engineer Board, who made the presentations, and Col. Meyer.

Engineers make history

(*Continued from page 2*)

bridge was begun on Mar. 9, at 12:30 p. m., conditions changed. This was what the Germans had been waiting for, and their shells found the mark with tragic regularity from a distance of not over 1,500 yd. The huge rubber floats were inflated in a street along the bank, and it must have looked like a shooting gallery to the German artillery observers who directed fire for a mobile gun that seldom was far off target.

Men and equipment lost

Before we got this bridge across we had lost three truck cranes, three air compressors, 25 floats and 17 men to the shells that landed in the street, which was quickly named Murder Row. Nor did the destruction end with the assembly yard. Most of the first 450 ft. of the 1,050-ft. long treadway was built three times before construction could get past midstream. And it is pretty tough to go back out and start again right after ten minutes of shelling has taken out 19 floats, as happened on this occasion. But go back the men did, and by 5:35 p. m. on Mar. 10 the treadway was across and traffic could move.

Since two-way traffic was required, a second pontoon bridge was under construction simultaneously. Placed at another location, it was of heavy pontoon construction instead of treadway type, and its construction was not quite so much harassed by shellfire. But men lost their lives there, too, before the 985 ft. of roadway could be put into service.

Construction began at 2 p. m. on Mar. 9 and ended at 11 p. m. on Mar. 10; a time which seems long only when one forgets that the current was about 7.5 ft. per sec., so that the bridge had to be arched upstream and was provided with special anchors to hold it in place, both time-consuming operations. Actually, from the time that our troops touched German soil at 4 p. m. Mar. 7, until there were ferries and two pontoon bridges supporting them, was just under 80 hr.

The bridge under fire

That such extensive facilities could be established so rapidly in positions zeroed by German artillery was a good omen for this and future crossings. We now had the bridgehead, but were by no means sure of retaining the bridge that had made it possible. The Germans, the natural elements, and the law of gravity all worked against us.

Daily shelling, although from farther and farther away as the bridgehead was widened, was taking its toll, now cutting a hanger, now a floorbeam, and always coming much too close to such vital members as the top chord or the posts over the piers. The wind was blowing in gusts up and down the gorge, vibrating the whole structure, and the great concentrations of loads on the few remaining members at the upstream east pier was slowly becoming evident in uncommon deflections and buckling web plates.

It was hardly a pleasant prospect, but there was no hesitation over the necessary course of action: Repair and save it if possible. The repair job decided upon had an objective of two parts, first, to rearrange the deck so that trucks could use it, and second, to repair the damaged truss so that tanks and railroad loads could be accommodated. There was no time to waste in achieving either objective.

Deck repair operations

The deck-repair job involved several operations, but in general its initial purpose was to get traffic as far over toward the undamaged downstream truss as possible. The Germans had laid a roadway on the upstream half so that our task was to complete the decking of the bridge. In addition, shells and bombs had taken out floor members (were in fact taking them out every day) and these had to be replaced, while at the west approach, a masonry span was gone, requiring construction of a trestle to supplement a Bailey span that had hastily been thrown across.

On the east approach, work consisted in grading a ramp from the bridge down to a waterfront roadway, since the railroad line itself went directly from the bridge into a long tunnel.

From end to end of the Remagen Bridge, therefore, work was underway, scores of men performing the ordinarily quite common construction tasks of driving trucks onto the deck with lumber or I-beams, operating a crane, welding, cutting, hammering and sawing, but all the time the Germans had only to train their guns for certain coordinates on their maps and fire. They were always on target, yet no one on the bridge showed outwardly that this Damocles Sword bothered him. Except for riflemen standing along the upstream rail and firing at any floating object in an effort to explode any mines, it could have been a bridge job in America.

Bridge damage extensive

At least it might have been thought to be a peacetime job until one looked at the damaged upstream truss at the east pier. A bridge as badly damaged in peacetime would probably be demolished as a menace. This one had to be saved, if possible, even at the [cost] of many lives.

As noted previously, the Rem[agen] Bridge was a three-span contin[uous] truss (its span lengths being 278, [360] 278 ft.) and, as shown in the ac[com]panying illustrations, it was of the [type] that has an arched center span [with] which the floor is carried by han[gers] (American structures of similar [type] probably based on or influenced by Remagen Bridge, include, [among] others, the Lake Champlain Bridge [and] the two highway crossings of the C[ape] Cod Canal).

The damage sustained by the br[idge] consisted of the severing of three [of] the four members in the first p[anel] of the main span out from the east [pier]. From one of these members, the bo[ttom] chord, a 10-ft. length had comple[tely] disappeared. Only the top chord re[-] mained intact in this panel, and it [was] being held up like the ridgepole of a tent by the vertical member resting on the pier shoe.

This bridge, in this condition, [still] carried General Hoge's tanks across and while the hanging end of the lower chord had dropped nearly a [foot] from its normal position and [some] buckling had occurred in the web of the top chord under its top flange and [that] there had been no change in these [con]ditions for several days. Examination resulted in the conclusion that [most] of the load had been transferred to the good downstream truss through the floor and sway bracing and that the truss would continue to support the structure while repairs were be[ing] made.

Repairs of the truss

These repairs were to include spl[ic]ing a new piece into the bottom chord aided by a jacking yoke, and the spl[ic]ing of the broken ends of the other members. Precedent for everything in the bottom-chord work existed in the second panel shoreward of this same pier, where the Germans had repaired some of our bomb damage of a few months previous. As a matter of fact, had they been a little slower with the repairs, the bridge would probably have collapsed under their demolition charge, for sturdy as it was it could not have carried stresses past two abutment panel points.

For nine days the repair work was pushed with all speed, injuries and lives paying for what progress was made. Under the circumstances, one could pray for a successful conclusion to the third chapter of the story of the Remagen bridgehead; and many did doubt did pray, but it was not to be and on Mar. 17, ten days almost to the hour from the time that the first American set foot on it, the Remag[en]

dge crashed into the Rhine. Many the men who had so courageously by the repair work went down the structure, 28 being lost and more suffering injuries of various rees of severity.

What caused the collapse?

That caused the Remagen Bridge to apse will no doubt be debated for y years among the Engineer sol- s who worked on it. It could have the wind bending the lone vertical over the pier back and forth until roke, or the wind could have set up sonant vibration in the structure as hole that could not be resisted by weakened parts.

The top chord may have buckled e more under the added load of ber deck and construction equip- nt, or the cross framing may have t transferring load to the good truss. ded together, however, all possible ses merely emphasize one major se—the bridge had lost too many mbers to act as a stable structure. en translation and rotation of its mbers began, from whatever cause, went on to failure.

The Remagen Bridge was probably ng on borrowed time from the instant demolition charge went off. Against ch a background, General Hoge's ring use of it to put ourselves across Rhine and Colonel Lyons' follow- rough on the engineering support mp the establishment of our first ine bridgehead as one of the great ions of the war. Every Engineer unit at took part in it has a right to be oud of its contribution and of the men its roster who sacrificed their lives Remagen.

Remagen roll of honor

Here is the honor roll of units: The 8th Treadway Bridge Company, the 8th Treadway Bridge Company and 1st Engineer Combat Battalion, all nder the supervision of the 1,111th gineer Combat Group, built the tread- ay bridge.

The 51st Engineer Combat Battalion, e 18th Heavy Pontoon Battalion and e 52nd Heavy Pontoon Battalion, all nder the supervision of the 1,159th gineer Combat Group, built the heavy ontoon bridge.

The 278th Engineer Combat Bat- lion built the railroad bridge deck; e 1,058th Port Construction and Re- air Group built the railroad-bridge eelwork; the 164th Engineer Combat attalion built special safety facilities; e 299th Engineer Combat Battalion nd the Sixth Heavy Pontoon Battalion uilt pontoon ferries; and the 276th ngineer Combat Battalion installed e "duck" ferries.

A. A. Miller to head Am. Railway Engr. Assn.

A. A. Miller, chief engineer maintenance-of-way, Missouri Pacific Railroad Co., St. Louis, was elected president of the American Railway Engineering Association in the election of officers held early in March. Normally, Mr. Miller would have taken over the office of president at the annual meeting scheduled for the third week in March but cancelled this year on account of the war.

The board of the association met in Chicago on March 14, at which time it was decided to vote by letter ballot on

recommended changes in the manual of the association that would have come up for action at the annual meeting. The board set March 12-14 as the dates for the 1946 annual meeting.

J. B. Akers, assistant chief engineer, Southern Railway System, automatically was advanced to first vice president to succeed Mr. Miller, and C. J. Geyer, general manager, Chesapeake & Ohio Ry., was elected second vice president. New directors are F. E. Bates, chief engineer, Missouri Pacific; G. A. Haggander, assistant chief engineer, Burlington Lines; and R. E. Dougherty, vice president, New York Central System.

Mr. Miller, the new president, is a graduate civil engineer from Ohio State University in 1902. For five years after graduation he was with the B. & O., rising to the position of division engineer. From 1907 to 1909 he was engaged in mining in Mexico, returning to this country in 1909 to join the Missouri Pacific as an assistant engineer. Progressively he was division engineer, general roadmaster, district engineer, superintendent and engineer maintenance-of-way. In 1938 he was made chief engineer maintenance-of-way.

Deficiency Bill has been passed by the Senate

A $2.6 billion deficiency appropriation bill (H.R. 2374), the first for 1945, was passed Monday by the Senate. The bill had already been approved by the House (*ENR* March 8, 1945, vol. p. 302) and after approval by the Senate it was sent to conference.

The Senate increased by some $237,800,000 the appropriation approved by the House. This increase included $2,000,000 to the U. S. Army Engineers for flood-control surveys and planning; $4,100,000 for construction and equipment at Langley Field, Va.; $5,540,000 for construction and equipment at the Aircraft Engine Research Laboratory, Cleveland, Ohio.

Several appropriations for new construction were already in the bill as passed by the House. These include: Federal Works Agency, $20,000,000, to be available for new community facilities projects after June 30, 1945; Public Roads Administration, $15,000,000 for access roads and $8,000,000 for strategic highway network; National Housing Agency, $84,373,000 for new construction and for reuse of existing war housing units by moving them to new locations; Bureau of Yards & Docks, U. S. Navy, $114,300,000 for public works construction; Corps of Engineers, U. S. Army, $405,000 for widening channel in Sewaren, N. J. area; and Veterans Administration, $500,000 for maintenance, alteration and repair of hospitals and homes.

. . .

Silver anniversary of Canadian A.W.W.A.

The Canadian Section of the American Water Works Association held its 25th anniversary meeting in Toronto on March 19-21, with a record-breaking attendance of over 700.

Officials of the association, including president S. F. Newkirk and secretary H. E. Jordan, were present from the United States.

W. H. Waddell, city engineer of Owen Sound, Ont., was elected chairman for the coming year, succeeding A. L. McPhail of St. Catherines. A. E. Berry continues as secretary-treasurer.

The petition for the formation of the Canadian Section of the A. W. W. A. was signed in 1916, but it was not until June, 1920, that the first meeting was held. It was in Montreal, with 60 members in attendance. Membership has grown to almost 400 while the number of waterworks systems in Canada has more than doubled.

Chief engineer named for Coordinator's office

C. I. Sterling, Jr., has been named chief of the Engineering Section of the Division of Health and Sanitation, Office of the Coordinator of Inter-American Affairs. With this organization since June, 1942. Mr. Sterling first served as assistant engineer in Washington, and later went to Paraguay as sanitary engineer for the Coordinator's operations in that country. In May, 1943, he was transferred to Chile to serve as sanitary engineer and associate chief of party, a position held until his present assignment.

In his new work Mr. Sterling takes over duties relinquished by Lt. Col. H. B. Gotaas, now director of the Division of Health and Sanitation (*ENR* Jan. 25, 1945, vol. p. 102).

Following his graduation from Lafayette College in 1927 with a civil engineering degree, Mr. Sterling joined the Massachusetts Department of Public Health and when the war began he was district engineer for the western half of the state. He also taught part-time at Massachusetts State College in Amherst.

Succeeding Mr. Sterling as chief engineer of the field party in Chile is Howard Schmidt. Since early in 1943 Mr. Schmidt served as chief of the Coordinator's Office field party in Panama. Prior to that he was state sanitary engineer in Tennessee.

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H. F. Peckworth to direct Am. Concrete Pipe Assn.

Howard F. Peckworth, asistant to the secretary, American Society of Civil Engineers, has been named managing director of the American Concrete Pipe Association with headquarters at Chicago. T. J. Kauer, Washington representative of the association since 1941, has been named assistant managing director and will maintain his residence in Washington. M. W. Loving, who has been serving as secretary-treasurer of the association on a part-time basis has resigned to devote more time to his consulting work.

Mr. Peckworth has been with the American Society of Civil Engineers since May, 1939, first as editor of *Civil Engineering* and then as assistant to the secretary, devoting most of his time to employment matters. A graduate of the engineering school at Princeton in 1926, Mr. Peckworth was on subway construction at New York from 1927 to February 1934. Subsequently he was field engineer for the contractors on Tygart Dam, resident engineer for the Birmingham Industrial Water Supply Commission, construction plant designer for Pacific Constructors on Shasta Dam, and PWA engineer on the Santee-Cooper project in South Carolina.

Mr. Kauer is a graduate civil engineer from Ohio State University in 1928. Before joining the pipe association he was with the Ohio Department of Highways and the Civil Aeronautics Administration.

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Surplus equipment sells fast at Granite City

The Chicago district office of Treasury Procurement held its first big surplus construction equipment sale at the Army Engineer depot at Granite City, Ill., March 19-21, disposing of items faster than one a minute. Included in the sale list were 29 large scrapers with pneumatic tires, 39 rotary [illegible] small scrapers, 9 pavers, 35 [illegible] mixers of various sizes, 4 rock crush[ers], 2 cranes, 11 pull type road grad[ers], 50,000 detachable drill bits, 252 pn[eu]matic backfill tampers, a miscellaneo[us] assortment of concrete buckets [and] hoppers, and several truck trailers, [and] dump bodies. The sale, attended [by] dealers from coast to coast, grossed [over] $135,000.

The sale procedure was the same [as] successfully used at Kearney, Neb., [last] month as described in *Engineering News-Record*, March 22, vol. pp. [illegible] and 393. After ample time allowed [for] inspection in the field, actual selling was conducted in the depot theater by [the] card system. Most items brought established ceiling prices, not announced [until] til after bids were submitted. Where more than one dealer bid over [ceil]ings, the successful buyer was chosen by lot and the item was awarded to him at the maximum allowable price. Maximum prices, as established by government appraisers, were exceeded for almost every individual unit.

In compliance with the law, representatives of county, state and municipal governments were allowed to buy any items at negotiated prices, usually the established ceiling, prior to the general sale. However, few such sales were made, and most of the equipment was available to the dealers. No farm equipment was included, in contrast to similar sales held previously at other points in the country.

JOBS OF THE WEEK

CARBON-BLACK PLANT, Guymon, Okla.

Cabot Carbon Co., Boston, Mass., awarded a contract for the construction of a carbon-black plant to Stone & Webster Engineering Co., Boston, Mass. The estimated cost is $3,000,000.

MAP SERVICE BUILDING, Dalecordia, Md.

John McShain, Inc., Philadelphia, Pa., has been awarded a contract for a map service warehouse by U. S. Engineers, Washington, D. C. The estimated cost is $4,000,000. Porter & Lockie, Washington, D. C., are the architects.

CARBON-BLACK PLANT, Eunice, N. M.

Charles Eneu Johnson & Co., Philadelphia, Pa., will construct by separate contracts additional facilities at carbon-black plant. The estimated cost is $3,000,000. United Engineers & Constructors, Inc., Philadelphia, is the engineer.

WATER TREATMENT PLANT and STORAGE FACILITIES, Jacksonville, Fla.

Bureau of Yards & Docks, Navy Department, Washington, D. C., awarded a contract for a water treatment plant and storage facilities, to Tuller Construction Co., Red Bank, N. J. at $580,650. E. T. Killam, New York, N. Y. is the engineer.

RAILROAD, Alabama.

Royce Kershaw & Co., Montgomery, Ala., has been awarded a contract for relaying, retimbering and resurfacing 80 miles of main line by Atlanta & St. Andrews Bay Railway Co., A. A. Winter, is the chief engineer at Dothan, Ala. The estimated cost is $800,000.

Note—Additional bidding and contract news on many projects large and small appear in the Construction News section beginning on page 16.

OBITUARY

omdr. Dow H. Nicholson, 63, of xel, Pa., of the Civil Engineering ps, U. S. Navy, and assistant to the Naval District public works officer, killed in an automobile accident at ne, Pa., on March 19.

artin J. Lide, Birmingham, Ala., ulting engineer, died March 15. He a graduate of Alabama Polytechnic itute and attended Union College, enectady, N. Y. He went to Birmingin 1906 as consulting engineer and igned and built Kilby Prison. He associated with the War Production rd for several years as priority nager.

apt. Leo S. Hillebrand, Jr., 25, who with A. Bentley & Sons, Toledo, o, construction firm, before the war, killed in action on Iwo Jima on b. 20. His father is vice president treasurer of the Bentley firm.

ames W. Saunders, 62, retired lder and contractor, died in Washton, D. C., March 14. Mr. Saunders in charge of remodeling and ting a new roof on the White House ring the Coolidge administration.

George Aexander Elliot, 65, superintendent of the Central Bridge Co., td., Trenton, Ont., died March 16.

Ben Roach, 60, since 1909, civil engier for the Southern Pacific Lines at ouston, Texas, died there March 7.

Calvin Beam, 64, who was about to e charge of the Fort Wayne district ce of the Indiana State Highway mmission, died at Fort Wayne, rch 19.

Henry Christian Hansen, 61, conruction foreman for the Southwest onstruction Co., at Houston, Texas, 15 years, died at Houston on Feb. 23.

John M. Weber, 75, former Stark unty, Ohio, superintendent of bridges d roads for 14 years, died March 19. e also was a former Massillon street perintendent, and a former foreman the Vogt Construction Co., of that y.

Walter S. L. Cleverdon, 67, who red in 1938 as an associate professor sanitary engineering and supervisor property at N. Y. University, died Bronxville, N. Y., March 25. Before ining the faculty in 1918, he had been an assistant engineer and designer with the Board of Water Supply, Gas and Electricity of N. Y. City.

J. A. Doolittle, 92, chief engineer of the Woodlawn cemetery, N. Y. City, for 67 years, died March 26. He studied civil engineering at the Sheffield Scientific School and was graduated from Yale in 1877.

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Army Engineers building big Hawaiian hospital

What is expected to the finest and most modern army hospital in United States possessions is under construction on the island of Oahu under the direction of the Honolulu U. S. Engineer District, the office of the Chief of Engineers recently announced. Known as the new Tripler Hospital, the **$16,000,000** medical center will have a 1,500-bed capacity. It will serve as a base hospital for the Central Pacific area.

York & Sawyer, New York City, have been engaged to construct the buildings under an architect-engineer-management contract. The main hospital building will have a reinforced-concrete frame designed to withstand earthquake tremors. The central portion of the building, including the basement and tower, will be ten stories high and two of the wings will be of five stories each, with two others of four stories each. Inclosed corridors will connect all the buildings, making it, in effect, one edifice. Completion is scheduled for October, 1946.

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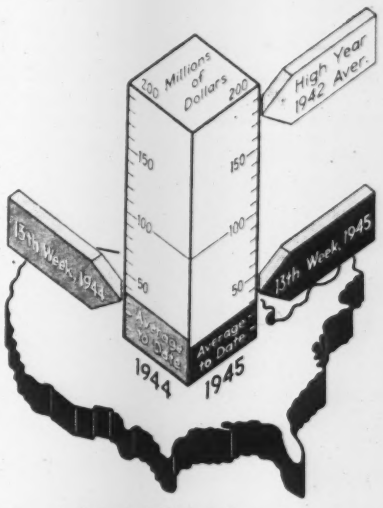
Pioneer trail broken through in Costa Rica

Recently a pioneer road was pushed through on the difficult 71-mi. highway project under construction in southern Costa Rica by the Ralph E. Mills Co., Roanoke, Va., according to the Public Roads Administration, which is supervising the work. About 200 Americans are now employed on the job and excellent progress has been made during recent months.

Although the road climbs to over two miles high through dense jungle and passes through an area of heavy precipitation, the construction crews were able to move 410,000 cu. yd. of earth last November, 720,000 yd. in December, and 1,247,000 cu. yd. in January of this year, E. W. James, in charge of PRA's Inter-American office, reports.

CONSTRUCTION ACTIVITY



As Reported This Week to...
Engineering News-Record

CONTRACT VOLUME
Continental U. S. Only (Thousands of Dollars)

	Week of Mar. 29 1945	Cumulative 1945 (13 wk.)	Cumulative 1944 (13 wk.)
Federal	$28,234	$227,323	$318,147
State & Municipal	4,900	39,440	33,635
Total Public	$33,134	$266,763	$351,782
Total Private	4,167	113,444	98,340
U. S. Total	**$37,301**	**$380,207**	**$450,122**

WHERE CONSTRUCTION ACTIVITY ORIGINATED THIS WEEK

Type of Work	Dollar Volume (Thousands) This Week	Cumulative 1945 (13 wk.)	Cumulative 1944 (13 wk.)
Waterworks	$805	$9,268	$6,403
Sewerage	599	8,223	6,029
Bridges	137	7,628	2,230
Highways	6,104	21,575	26,314
Earthwork, Waterways	1,630	8,508	14,646
Buildings, Public	22,047	167,396	188,279
Industrial	2,602	81,427	39,979
Commercial	312	21,340	49,473
Unclassified	3,065	54,842	116,769

NOTE: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1945 (13 wk.)	Cumulative 1944 (13 wk.)
NON-FEDERAL	$172,398	$90,806
Corporate Securities	37,867	53,176
State and Municipal	120,731	30,090
RFC Loans	13,800	7,540
FEDERAL	$77,137	$90,832
Total Capital	**$249,535**	**$181,638**

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Mar. '45	304.50	146.37
Building Cost	Mar. '45	237.85	128.57
Volume	Feb. '45	78	34

CONSTRUCTION REPORTS

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.
ELSIE EAVES, Manager *SCOTT McLEOD, Statistics* *J. A. MAHONEY, Reports*
(Daily service also available—Write for details)

WATER SUPPLY

PROPOSED WORK

†Fla., Opa Locka—City, City Hall, making plans imprv. water facilities, $62,000. **FWA.** Smith & Gillespie, Packard-Florida Bldg., Jacksonville, engrs. CD 3/13—ENR 3/15.

Ind., Tell City—Tell City Water Co., Tell City exten. watermains and build storage tanks. $60,000.

Mass., Rochdale and Cherry Valley—Towns of Rochdale and Cherry Valley, E. J. Titcomb, water comr., Pleasant St., Leicester, plans completed water filtration plant, $50,000. Metcalf & Eddy, 1300 Statler Bldg., Boston, engrs.

Mass., Stoneham—Town Supt. P. Wks., Town Hall, piping water various sections, Sweetwater Brook. $26,200 appropriation voted.

Minn., New Ulm—City, Pub. Utilities Comn., A. C. Sannwald, secy., rejected bids Mar. 13, municipal water treatment plant imprvs., furnishing, installing water treatment equip., pumps, piping, bldg. changes. Over $15,000. Will readvertise. R. D. Thomas & Associates, 1200 2 Ave. S., Minneapolis, engrs. CD 2/21—ENR 3/1.

†Mont., Fort Harrison—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., water reservoir and pipeline, $25,000.

N. Y., Barker—Village Bd., C. H. Mang, mayor, City Hall, approved bond issue water supply sys., incl. installation accelerator, pump and chlorinator, $20,000.

N. D., Wishek—City, F. Thurn, aud., voted $22,000 bonds, WW sys. $50,000.

Rhode Island—State Planning Bd., State House, Providence, water survey for pollution, Correction Project. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs.

Puerto Rico, Rio Piedras—Insular Aqueduct Service, reservoir repairs, imprvs., $50,-380.

BIDS ASKED

Bids Asked April 6

Mass., Palmer—Town, Three Fire Dist., Palmer, pump. sta., incl. pump. equip., watermain. $19,000. Plans deposit $10. Whitman & Howard, 89 Broad St., Boston, engrs. CD 12/19—ENR 12/21.

Ore., Portland—W. D. Cameron, dist. chn., Westslope Water Dist., 9025 S.W. Canyon Rd., installing 36,000 ft. 12 in. i.d. water supply line from Portland city water supply sys. along Canyon Rd. to water districts storage tank. Plans deposit $10. Cunningham & Assoc., 1112 Spalding Bldg., engrs. CD 3/22.

Tex., Winters—City, T. A. Smith, mayor, City Hall, Contr. 2, pump station at lake site, water treatment plant, 10 in. line between intake tower and pump. station, 10 in. line between pump. station and treatment plant, 8 in. line between treatment plant and water tower in town, all equip., fittings, etc. Plans deposit $25. French Engineering Co., Citizens Bank Bldg., Abilene, engr. CD 2/27—ENR 3/1.

Bids Asked April 10

Tex., Kerrville—City, c/o City Mgr., City Hall, water well. Plans deposit $5. H. R. F. Helland, 904 Frost National Bank Bldg., San Antonio, engr.

Bids Asked April 17

†Okla., Oklahoma City—E. M. Simon, city clk., City Hall, 15 m.g.p.d. water purification plant and pump. station at Bluff Creek, near here. **FWA.** V. V. Long & Co., Colcord Bldg., Zone 2, engrs. CD 3/15—ENR 3/22.

Bids Asked May 8

†Mont., Fort Harrison—Veteran's Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., concrete water reservoir, Proj. 2387. CD 3/22.

LOW BIDDERS

N. J., Bridgeton—City, B. R. B. Aitken, mayor, City Hall, deep well, from Layne New York Co., 92 Liberty St., New York, N. Y., **$16,912.** W. A. Kirby, 168 Commerce St., city engr. CD 10/25—ENR 11/2.

†Tex., Longview—City, W. Morgan, works mgr., City Hall, Mar. 20, WW imprvs., incl. pump. stations, sedimentation basin, pumps, etc., Tex. 41-701N, from M. Clint Brown, Longview, **$19. FWA.** CD 3/8.

†Va., Norfolk — City, City Hall, Mar. 15, 30 in. watermain from Lake Burnt Mills Pump. Station to and incl. connection with 36 in. main running from Lake Prince to here, Va. 44-347 from Lockjoint Pipe Co., Ampere, N. J. **$104,443. FWA.** CD 3/7.

Va., Richmond—City, City Hall, Mar. 19, 1 m.g. water tank assuring more adequate supply of water in South Richmond, from Chicago Bridge & Iron Works, 1305 W. 105 St., Chicago, Ill., **$85,800.** G. M. Bowers, Aluminum Bldg., engr. CD 12/7—ENR 12/14, under LB.

CONTRACTS AWARDED

★**†Fla., Jacksonville**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., water treatment and storage facilities at Naval Air station NOY 10521, to Tuller Constr. Co., 95 Monmouth St., Red Bank, N. J. **$580,650.** CD 2/20.

Mass., Wellesley—Town, Bd. Selectmen, Town Hall, installing watermains in various streets, day labor. To exceed **$15,000.**

Minn., Nopeming—St. Louis County Sanatorium Comn., G. A. Hedberg, secy., Duluth, water supply sys. addn., Nopeming Sanatorium, to J. D. Harrold, 127 E. 1 St., Duluth, **$20,080.** C. Foster, 316 Medical Arts Bldg., Duluth, engr. Bids 3/2.

†R. I., Westerly—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., fire protection water sys. at Naval Auxiliary Air Station, NOY 11552, to N. Benvenuti & Sons, 16 Elm St., New London, Conn., **$27,480.** CD 2/27.

Location of ENR Correspondents

Symbols and Abbreviations Include:

†	Federal Government
★	Project of $500,000 or over
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger; water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED: (except Streets & Roads); BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR);

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

†Tex., Gatesville—U. S. Eng. Fort Houston, rehabilitation water pump. tion, at Camp Hood, Serial W-41-154-[illegible] Taylor Constr. Co., P. O. Box [illegible] **$16,868.** Tentative award [illegible] 3/22.

SEWERS, WASTE DISPOSAL

PROPOSED WORK

Calif., Los Angeles—City, City Hall, [illegible] clay sanitary sewer in Vesper Ave. [illegible] Hatteras St. $64,307. L. Aldrich, City [illegible] city engr.

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., Hall of Records, sanitary sewer in Norfolk Blvd., in vicinity of Whi[illegible] $313,400. A. Jones, Hall of Records, engr.

Calif., Los Angeles—Los Angeles Co. Bd. of Records, 14,550 ft. 6 and 8 in. vit. [illegible] sanitary sewer, manholes, etc. in Fra[illegible] Ave., etc., CI 1070. $44,320. A. Jones, Hall of Records, co. engr.

Calif., San Bernardino—Bd. Supervs. San Bernardino Co., Court House, approx. 2,[illegible] 5 ft. concrete storm drain, large catch basi[illegible] Macy St. $180,000.

Mass., Wellesley—Town Bd. Selectmen, Town Hall, exten. sewer lines in various streets. $100,000 appropriated.

†Minn., Duluth—City, C. D. Jerom[illegible] clk., 2,370 lin. ft. interceptor sewer [illegible] station, Imhoff tank, sludge bed, at Riv[illegible] side. $38,000. **FWA.** F. A. McCombe, [illegible] engr. CD 3/13—ENR 3/15.

Minn., Osseo—Village, G. M. Heesen, [illegible] sanitary sewerage sys., storm sewers, sewa[illegible] treatment plant. $75,000. R. D. Thomas & Associates, 1200 2 Ave. S., Minneapo[illegible] engrs. CD 12/20—ENR 12/28.

Ore, Springfield—City, City Hall, trunk line sewer in Water to K Sts. and [illegible] through city. $50,000. A. W. Vanle[illegible] Hall, city engr.

Pa., Phila.—City, Dpt. P. Wks. J. E. Neeson, dir., City Hall Annex, Mill C[illegible] sewer reconstruction. $300,000. T. Bu[illegible] City Hall, city engr.

†Pa., Pittsburgh—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., replacing sewage disposal plant. $40,000.

†Tex., Houston—City, City Hall, sanitary sewer line exten., Tex. 41-712. **FWA.** J. F[illegible] gate, City Hall, engr.

Wis., Racine—City, storm sewer, N. Ma[illegible] St. from Root River to Goold St. [illegible] W. J. Chadwick, Racine, engr.

†Wyo., Sheridan—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., sewage disposal plant. $40[illegible]

BIDS ASKED

Bids Asked April 7

Pa., Pittsburgh—C. M. Woolworth, sec. Dpt. Property & Supplies, reconstruct approx. 500 lin. ft. 24 in. sewer at West state Penitentiary, Allegheny Co., to be replaced parallel to Ohio River, approx. 1[illegible] from east bank, etc., for Commonwealth of Pennsylvania.

Bids Asked April 6

Md., Pocomoke City—J. T. Nock, mayor and Council of Pocomoke City, Mun[illegible] Bldg., approx. 1,800 lin. ft. 8 and 10 in. sanitary sewers, appurtenances incl. underground sewage pump. station. Plans [illegible] posit $20. C. Gardner, Salisbury, cons[illegible] engr.

†Wash., Sunnyside—City, K. H. Stone, [illegible] clk., City Hall, lateral sewers, Wash. 41-[illegible] N. **FWA.** Plans deposit $10. G. D. Hall, Le[illegible] son Bldg., Yakima, engr. CD 3/20—EN[illegible] 3/22.

Bids Asked April 9

Conn., Hartford—Bd. Contr. & Supply Metropolitan Dist., R. Dillon, clk., 756 Ma[illegible] St., reconstructing Asylum St. sewer be[illegible] tween Spruce and Garden Sts.; adv. EN[illegible] 3/29.

Pa., Boothwyn—Upper Chichester Twp. Town. Hall, Boothwyn, storm sewer, Upper Chichester Twp. $25,000. C. F. Baker, 66[illegible] Crozer Bldg., Chester, twp. engr. CD 1/8—ENR 2/1.

LOW BIDDERS

Calif., San Francisco—City, Dpt. P. Wks. City Hall, Mar. 21, Lincoln Way Storm Drain, Great Highway sys., Spec. 19,623, from Healy Tibbitts Constr. Co., 1100 Evans Ave., **$174,892.** CD 3/9.

RS etc. (Low Bidders, Cont'd.)

New Orleans—City, City Hall, Incin- C exten., Prop. 5018, from Boh rs Constr. Co., 2400 Cypress St., $43,- CD 2/6—ENR 3/8.

RACTS AWARDED

Hayward—Oro Loma Sanitary Dist., Foothill Blvd., vitr. sewers in Ashland M. Smith, 313 Syndicate Bldg., Oak- $239,289. Est. $264,000. Bids 3/13. CD ENR 2/15.

Aberdeen Proving Ground—U. S. Standard Oil Bldg., Baltimore, addnl. ge facilities, Contr. W-18-020-eng-790, Matricciani & Sons, Cherry Hill and Rds., Baltimore. **$56,800.**

Springfield—City, Dpt. Streets & Municipal Bldg., sanitary sewers, Goldenrod, Baywood, Arbutus and ts. Owner builds. **$37,000.** CD 3/14— 3/22.

BRIDGES

OSED WORK

siana—State Dpt. Hys., Baton Rouge, steel swing span hy. bridge across Vermillion at point about 610 ft. am from existing bridge, approx. 37.6 t point where the changed route of tate 175 intersects the waterway at Lafayette and Vermillion Parishes.

ASKED

Bids Asked April 3

a—State Hy. Comn., Ames, repairing 1 M-1293, Calhoun Co.; 4 culverts, M- Harrison Co.; 1 culvert, M-1293, Polk culverts, M-4297, Pottawattamie Co.; erts, M-1292-A, Warren Co.; mainte- rip-rap at Indian Creek and at North River, Iowa 64, M-1294-B, Jasper and all Counties; U. S. 163, at Skunk River, 6, Keokuk Co.; at Des Moines River on Iowa 14, M-5277, Marion Co. F. R. Ames, hy. engr.

Bids Asked April 4

nsas—State Hy. Dpt., Little Rock, Sadler, chn., 589 ft. untreated tim- structural steel detour bridge over ita River on Camden-Fordyce Rd., ita Co.

Bids Asked April 19

St. Georges de Beauce—G. Bourgue, ipality clk., St. Georges de Beauce, $25,000. Dpt. P. Wks., Quebec engrs.

BIDDERS

rgia—State Hy. Dpt., Atlanta, Mar. 21, facing 5 bridges, overpass, repairing resurfacing 2 bridges, Chatham Co., Espy Paving & Constr. Co., 108 E. Bay avannah, **$25,879** • • • repairing Back p Bridge, Long Co., from J. F. Thomp- 785-19 Ave. S., St., Petersburg,. Fla., 8 • • • repairing 5 bridges Telfair, Jeff and Montgomery Counties, from Dixie r. Co., P. O. Box 201, Savannah, **$43,523.** /15.

TRACTS AWARDED

Sanford—Town Hy. Dpt., Town Hall, al repairs bridges and roads, south and districts of town. Owner builds, **$31,-** CD 3/8—ENR 3/15.

shington—State Hy. Dpt., C. E. Hickey, Olympia, rein.-con. overpass at Van- r junction with Fruit Valley Rd., Co.-Over **$25,000.**

STREETS AND ROADS

OSED WORK

rto Rico, Mayaguez — Municipality completing Fabrica de Sacos, Rio Cuevas and Planta de Filtracion $70,000.

rto Rico, Vega Alta—Dpt. of Interior, completing 6 kms. Vega Alta Vega Insular Rd. 2. **$335,000.**

ASKED

Bids Asked April 3

an., Hartford—Bd. Contr. & Supply, cipal Bldg., 550 Main St., constructing way, lawns, walks, grading, Isolation tal, Coventy and Holcomb Sts., Conn. Plans deposit $10. **FWA.** Ebbets d, 15 Lewis St., archt.

iana—State Hy. Comn., A. J. Wedek- chn., Indianapolis, rein.-con. widening mi. State Rd. 62, northeasterly from estown, Clark Co. Extended date. R. r, c/o owner, ch. engr. CD 3/14.

a—State Hy. **Comn., Ames,** mainte- resurfacing 4.5 mi. Iowa 164 from s Park to Boone, 4.9 mi. Iowa 329 Boxholm to Pilot Mound, M-1315, Co.; 15.2 mi. Iowa 221 from Iowa 5 to 71, 13.1 mi. Iowa 110 from Schaller to Lake, 8.3 mi. Iowa 196 from Sac City S. 71, 10 mi. Iowa 4 from Crawford Co., ebolt, M-3345, Buena Vista, Cherokee ac Counties; 8 mi. Iowa 14 from Albion d of pavement north of Parkersburg, 2 owa 326 from Bristow to Iowa 10, 1, Butler Co.; 5 mi. Iowa 217 from to U. S. 71, 0.7 mi. Iowa 285 from Arcadia to U. S. 30, 9.9 mi. Iowa 286 from Lanesboro to U. S. 30, M-1317, Carroll Co.; 15.9 mi. U. S. 67 from end of Jackson Co. to U. S. 61, 5.5 mi. from Iowa 246 from Lamotte to U. S. 61, 23 mi. Iowa 136 from Luxemburg to Cascade M-6206 Dubuque and Jackson Counties; 10.7 mi. Iowa 17 from Churdan to Lohrville, 11.5 mi. Iowa 144 from Dana to Iowa 175, 9.8 mi. Iowa 17 from Jefferson to Guthrie Co., 8.8 mi. Iowa 144 from Ripley to Perry, M-1316, Greene Co.; 7.7 mi. Iowa 215 from Eldora to Union, 7.5 mi. Iowa 359 from Buckeye to U. S. 20, M-1311, Hardin Co.; 5.3 mi. Iowa 153 from U. S. 6 to U. S. 218, 14.5 mi. Iowa 1, from Iowa City to Washington Co., 3.3 mi. Iowa 382 from Solon to McBride Park, M-6205, Johnson Co.; 12.6 mi. Iowa 21 from Deep River to U. S. 6, 7.6 mi. Iowa 85 from Montezuma to Deep River, 28.7 mi. Iowa 146 from Mahaska Co. to Marshall Co., 6.3 mi. Iowa 225 from Sully to Iowa 146, M-1312, Poweshiek Co.; 14.6 mi. Iowa 175 from Dayton to Stratford and from Gourie to Calhoun Co., 6 mi. Iowa 321 from Clare to Iowa 5, 13.3 mi. Iowa 50 from Lehigh to Callender, 0.5 mi. Iowa 121 from State Park to Iowa 50, M-1313, Webster Co.; 8 mi. Iowa 9 from east of Forest City to Fertile, 1.1 mi. Iowa 332 from Pilot Knob State Park to Iowa 9, M-2242, Winnebago and Worth Counties; maintenance cover aggregate U. S. 65 from U. S. 69 to U. S. 34, M-1314, Warren and Lucas Counties. F. R. White, Ames, ch. engr.

Ia., Fort Dodge—Bd. Supervs. Webster Co., gravel surfacing various secondary roads, involving 35,000 cu. yd. gravel, crush, screen load and haul 1 mi., 480,000 units addnl. ½ mi. haul, 7,000 cu. yd. pit stripping. Over $25,000. J. C. Mors, Fort Dodge, co. engr.

Mich., Detroit—Comrs. Wayne Co., 3800 Barlum Tower, concrete widening, drainage structures 2.5 mi. Wayne Rd., Nankin Twp.; widening 2 mi. Plymouth Rd., Livonia and Plymouth Twps.; concrete paving 0.24 mi. Ann Arbor Trail. Plans deposit $5 each. L. C. Smith, 3800 Barlum Tower, engr.

N. J., Pittsgrove—Town, Town Hall, gravel surfacing 15,536 sq. yd. and bituminous surface treated on earth paving. Elmer-Kean's Corner Rd. Skinner & Compton, 90 Market St., Salem, engrs.

West Virginia—State Road Comn., Charleston, D. McClaugherty, secy., surface treating 6.7 mi. Andrew to Junction US Route 119 and State Route 3 Rd., (U. S. Route 119 and State Route 3), S. P. 3036 and 3529, Boone Co.; 5.46 mi. Sutton-Flatwoods Rd. (U. S. Route 19), S. P. 69-A (2) and 159-H (1), Braxton Co.; 5.45 mi. Gauley Bridge-Belva Rd. (U. S. Route 19), S. P. 3358 A and B, 8.81 mi. Oak Hill-Kincaid Rd., (State Route 61), S. P. 3692 and 3693, both Fayette Co.; 5.31 mi. Ruth to Alum Creek Rd. (State Route 13) and S. P. 3483, and 5.3 mi. Marmet-Cheilyan Rd., State Route 61, S. P. 288-A and 3398 A and B, Kanawha Co.; 19.8 mi. Midkiff to Logan Co. line Rd., State Route 10, S. P. 2164, 3169 and 2169, Lincoln Co.; 8.8 mi. Rum Junction to Huff Junction Rd. (State Route 10), S. P. 2202-B, 2203 and 3481, Logan Co.; 11.37 mi. Coalwood Mountain-War Rd., State Route 16, S. P. 2166 and 2165 McDowell Co.; 11.87 mi. mouth of Johnny Cake-Mingo Co. line Rd., (U. S. Route 52), S. P. 3129 and 3128 A and B, McDowell and Wyoming Counties; 16.4 mi. New Creek Junction-Romney Rd. (U. S. Route 50), S. P. 3010 and 3011, A. B., Mineral and Hampshire Counties; 9.52 mi. Top Powell Mountain to Braxton Co. line Rd., (U. S. Route 19), S. P. 159 C and D, Nicholas Co.; 7.46 mi. Cherry Grove-Pocahontas Co. line Rd. (State Route 29) and S. P. 4-A and 3496, and 8.34 mi. mouth of Seneca Grant Co. line Rd., (State Route 4), S. P. 3530, both Pendleton Co.; 11.6 mi. Scary-Winfield Rd. (State Route 17), S. P. 206-B, 3359, 3299 and 3420 (Pt.), Putnam Co.; 4.18 mi. Blizzard Farm to Junction U. S. Route 21 and State Route 14 Rd. (U. S. Route 21), S. P. 2082-B, 40 and 3084-A (Pt.) hot laid asphaltic concrete surfacing 1.6 mi. Blizzard Farm to East Street Bridge Rd., (Alternate U. S. Route 21) S. P. 2250-2082-A and 3227, foregoing in Wood Co.

Bids Asked April 5

Md., Baltimore—City Registers Office, concrete paving alleys listed under Contr. OC 165, City, c/o Bd. Awards, City Hall. Plans deposit $5.

Nebraska—State Dpt. Roads & Irrigation, Lincoln, sand gravel surfacing 12.1 mi. detour for Geneva-Hebron, F.A.P. SN-A-FAP 40 (6) and SN-A-FAP 75 (9), Thayer Co.; 9.2 mi. detour for Geneva-Hebron F.A.P. SN-A-FAP 75 (10), Fillmore and Thayer Counties; 21 mi. detour for Columbus-Shelby F.A.P. SN-FAP 86 (6), Polk and Butler Counties; 11.8 mi. detour for Palisade-Culbertson F.A.P. 243-A (2) and 243-B (5), Hitchcock Co.; 4,055 cu. yd. Beatrice-Pawnee City Patrol No. 11025 State Rd., Gage and Pawnee Counties; 1,250 cu. yd. Fairbury South Patrol No. 11032 State Rd., Jefferson Co.; 1,330 cu. yd. Burchard South Patrol No. 11051 State Rd., Pawnee Co.; 3,760 cu. yd. Lincoln-Dorchester Patrols Nos. 19026 and 19125 State Detour Rd., Lancaster and Saline Counties; 3,184 cu. yd. Clarkson-Schribner Patrol No. 21026 State Rd., Colfax and Dodge Counties; 5,226 cu. yd. Winnebago-Decatur, Walthill-Macy and Winnebago West Patrols Nos. 31037, 31073 and 31088 State Rds., Thurston and Burt Counties; 2,090 cu. yd. Dixon North and South, Dixon-Laurel and Concord West Patrols Nos. 31064 and 31065 State Rd., Dixon and Cedar Counties; 2,325 cu. yd. Arcadia-North Loup Patrol Nos. 41086 State Rd., Valley Co.; 3,275 cu. yd. Scotia-Greeley Center and Scotia-Brayton Patrols Nos. 41095, 41097, Greeley Co.; 1,750 cu. yd. Greeley Center North Patrol No. 41096 State Rd., Greeley Co.; 1,185 cu. yd. Redington-Bridgeport Patrol No. 51008 State Rd., Morrill Co.; 2,250 cu. yd. Hay Springs Alliance Patrol No. 51024 State Rd., Sheridan Co.; 2,000 cu. yd. Crawford-Northwest Patrol No. 51035, Dawes Co.; 1,095 cu. yd. Scottsbluff-Hemingford Patrol No. 51042, Box Butte Co.; 3,008 cu. yd. McCook-Maywood Patrol No. 61012-Div. 1 State Rd., Red Willow and Frontier Counties; 4,155 cu. yd. McCook-North Platte and Maywood-Curtis Patrols No. 61012, Div. II and 61013 State Rds., Frontier and Lincoln Counties; 1,300 cu. yd. Butte North Patrol No. 81005 State Rd., Boyd Co.; 2,230 cu. yd. Butte-Atkinson Patrol No. 81106 State Rd., Boyd and Holt Counties; 1,200 cu. yd. Merriman North Patrol 81024 State Rd., Cherry Co., 500 cu. yd. Newport-Jamison Patrol No. 81025 State Rd., Rock and Keya Paha Counties; 5,730 cu. yd. Taylor-Bassett Patrol No. 81031 State Rd., Rock Co.; 2,150 cu. yd. Taylor-Bassett Patrol No. 81032 State Rd., Loup Co.; 2,650 cu. yd. Burwell-Bartlett Patrol No. 81037 State Rd., Wheeler Co. W. G. Scott, state hy. engr.

Bids Asked April 6

Que., Montreal—Executive Com. Municipality, c/o J. A. Mongeau, City Hall, paving Isabella and Kirkfield Aves., and 2 other streets yet to be named. $60,000. Plans deposit $25.

Bids Asked April 9

Ia., Sioux City—Bd. Supervs. Woodbury Co., Sioux City, maintenance graveling 280.6 mi. various secondary roads, incl. 7,444 cu. yd. pit stripping, 42,999 cu. yd. gravel load, screen, crush and haul 1 mi., 874,666 units addnl. ½ mi. haul. Over $25,000. J. C. McLean, Sioux City, co. engr.

Tex., Lufkin—Angelina Co., c/o Judge, Lufkin, clearing, grubbing, asphalt paving in hospital zone. Plans deposit $5. $25,000. M. M. Holland, 410 S. 1 St., engr.

Bids Asked April 11

California—State Div. Hys., Sacramento, plant mix surfacing and seal coat repairing about 60 mi. hy. between Horse Lake Rd. and Lakeview Junction, between Alturas and Stronghold, Lassen and Modoc Counties; plant mix surface repairing 4.8 mi. road between 6.7 mi. north of Madera and Merced Co. line, Madera Co.; placing plant mix surfacing and applying seal coat 13.5 mi. road between Quail Station and 6.5 mi. north of Goshen, Tulare Co. G. T. McCoy, state hy. engr.

New York—H. A. Cohen, dir. Bureau Contracts & Accounts, State Office Bldg., Albany, bituminous macadam surfacing 28.61 mi. Contr. F.A. RC. 43-5, Chautauqua Co.; adv. ENR 3/29.

Bids Asked April 12

Ia., Maquoketa—Bd. Supervs. Jackson Co., Maquoketa, resurfacing 89.12 mi. various secondary roads, involving 25,571 cu. yd. Class A crushed stone on road. Over $25,000. C. C. Bowman, Maquoketa, co. engr.

Bids Asked Early in May

Ill., East St. Louis—City, L. J. Dougherty, street comr., Main St. at Missouri Ave., concrete and asphalt paving Collingsville Ave., Bway. to St. Clair Ave., and St. Louis Ave., Collinsville Ave. to 6 St., incl. widening Collinsville Ave., Summit to St. Clair Aves. $100,000-$120,000. CD 2/5—ENR 2/8.

Bids Asked

Iowa—State Hy. Comn., Ames, rejected bids, Mar. 20 ditch excav. 3.95 mi. Crawford Co. CD 3/9—ENR 3/15.

LOW BIDDERS

D. C., Wash.—District Comrs., District Bldg., Mar. 15, imprv. roadways, various streets with 2,400 tons bituminous surface course and 10,000 tons asphaltic concrete base, from Donaldson Paving Co., Inc., 20 Potomac Ave. S.W., **$99,964.** CD 3/12.

★**Georgia**—State Hy. Dpt., Atlanta, Mar. 21, from Scott Constr. Co., Thomasville, imprv. 11.14 mi. Camden Co., **$61,383**; 2.5 mi. Dougherty Co., **$33,720**; 2.35 mi. Laurens Co., **$34,256**; 5 mi. Laurens Co., **$25,895**•••from A. W. Ledbetter, Rome, 12.1 mi. Valdosta-Adel Rd. and 11.2 mi. Valdosta Lake Park Rd., Lowndes Co. **$37,020**; 11 mi. Decatur Co., **$38,141**•••from E. D. Sloan, Greenville, S. C. 16.7 mi. Worth Co., **$49,355**; 6.3 mi. Taylor Co., **$60,672**•••from MacDougald-Warren, Inc., Northside Dr. N.W., Atlanta, 3.3 mi. Fulton Co., **$58,908**; 3.25 mi. De Kalb Co., **$38,786**•••from W. C. Shepherd Co., Inc., 13.35 mi. 2450 Briarcliff Rd. N.E., Atlanta, Fulton Co., **$146,002**•••from S. Finley, Inc., 292 North Ave. N.W., Atlanta, 2.3 mi. Clayton Co., **$40,313**; 1.75 mi. Muscogee Co., **$45,123**•••from E. Jack Smith, Hurt Bldg., Atlanta, 8.7 mi. Bulloch Co., **$32,375**•••from R. B. Tyler & Co., Inc., 1446 Levering St., Louisville, Ky., 10 mi. Crawford Co., **$70,970**; 5.5 mi. Houston Co., **$90,285**•••from Central Sand & Asphalt Co., 1st Natl. Bank

STREETS, etc. (Low Bidders, Cont'd.)

Bldg., Atlanta, 2.8 mi. Athens-Jefferson Rd. and 3.9 mi. Athens-Elbertson Rd., Clarke Co., **$52,208*****from Wainer Constr. Co., Valdosta, 5.5 mi. Brooks Co., **$27,992*****from C. M. Lyle Constr. Co., Gainesville, 5.2 mi. Lumpkin Co., **$90,445*****from E. A. Hudson's Sons, Bolton, 8.3 mi. Forsyth and Gwinnett Counties, **$141,277*****from W. L. Cobb, Inc., Decatur, 5.5 mi. Spalding and Henry Counties, **$106,588.** CD 3/15.

★**Kentucky**—Dpt. Hys., Frankfort, Mar. 23, from Middle West Roads Co., Nobleville, Ind., imprv. 21.25 mi. Crittenden and Caldwell Counties, **$153,317*****from Breslin Constr. Co., 1801 S. Brook St., Louisville, 21.95 mi. Hancock and Breckenridge Counties, **$115,460;** 2.988 mi. McCracken Co., **$45,920;** 36.765 mi. Jackson, Madison and Rockcastle Counties, **$159,032;** 8.32 mi. Knox Co., **$33,467*****from Codell Constr. Co., Winchester, 3.295 mi. Perry Co., **$170,625;** 4.993 mi. Perry Co., **$238,478;** two foregoing jobs combined, **$397,565*****from Kentucky Road Oiling Co., Frankfort, 44.173 mi. Ballard, Carlisle, Hickman, Fulton and Graves Counties, **$219,644*****from R. E. Gaddie & Co., Bowling Green, 20.723 mi. Muhlenberg and Ohio Counties, **$79,430;** 35.023 mi. Barren, Monroe, Cumberland, and Metcalfe Counties, **$100,168*****from H. C. Adams, Lexington, 37.854 mi. Oldham and Henry Counties, **$100,521*****from Allen & Codell Co., Winchester, 17.514 mi. Clay Co., **$85,225*****from Gay-Coleman Constr. Co., 113 Cheapside St., Lexington, 28.933 mi. Pike Co., **$112,469.** CD 2/27.

Md., Baltimore—City, Bd. Awards, Mar. 16, repairing asphalt paving, various streets, eastern sect., from P. Flanigan & Sons, 2405 Loch Raven Rd., **$274,448;** repairing asphalt streets in western sect., from Baltimore Asphalt Block & Tile Co., 1320 N. Monroe St. **$273,770.** Est. $255,000 each.

Pennsylvania—State Hy. Dpt., Harrisburg, Mar. 20, imprv. 2.76 mi. Delaware Co., from Union Paving Co., Broad and Stiles Sts., Phila., **$45,103*****3.4 mi. Susquehanna Co., from N. B. Putman Co., Honesdale, **$73,976*****3.48 mi. Jefferson and Indiana Counties, from John Carson & Son, 1248 Pennsylvania Ave., Pittsburgh, **$77,769*****1.34 mi. Cambria Co., from R. W. Smith & Son, Dillsburg, **$153,834*****0.58 mi. Philadelphia Co., from General Asphalt Paving Co., Glenview and Rising Sun Aves., Phila., **$25,946.** CD 3/6—ENR 3/8.

Washington—C. E. Hickey, dir. State Hy. Dpt., Olympia, Mar. 20, imprv. 1.59 mi. Cowlitz Co., from Strong & Macdonald, 4045 Ruston Way, Tacoma, **$202,790.** CD 3/6—ENR 3/8.

CONTRACTS AWARDED

Florida—State Rd. Dpt., Tallahassee, imprv. 16.387 mi. Escambia, Okaloosa and Santa Rosa Counties, to Faulk & Coleman, Cocoa, **$57,016*****14.916 mi. Nassau Co., to J. D. Manley Constr. Co., Leesburg, **$88,407*****47.245 mi. Marion Co., and 25.439 mi. Osceola, St. Johns and Volusia Counties, to L. J. & W. L. Cobb, Inc., 1102 22 St., Tampa, **$109,756** and **$36,440** respectively***3.932 mi. Palm Beach and Broward Counties, to A. O. Greynolds Co., Inc., West Palm Beach, **$50,696*****28.128 mi. Walton and Holmes Counties, to C. C. Moore Constr. Co., Panama City, **$44,994.** Grand total **$387,309.** Bids 3/15, awarded 2/20. CD 3/9.

Florida—State Rd. Dpt., Tallahassee, imprv. 2.988 mi., Hillsborough Co., to Cone Bros. Contg. Co., Caesar Ave. and Cumberland Rd., Tampa, **$33,494*****22.33 mi. Baker, Nassau and Duval Counties, to R. T. Gordon, 2077 W. Beaver St., Jacksonville, **$105,411*****31.515 mi. Alachua Co., to L. J. & W. L. Cobb, Inc., 1102-22 St., Tampa, **$43,301*****12.442 mi. Collier Co., to Troup Bros., 4151 S. Dixie Hy., Miami, **$143,268*****15.381 mi. Pinellas and Hillsborough Counties, to W. H. Armston Co., Inc., Dunedin, **$89,517*****26.759 mi. Franklin, Jefferson, Liberty, Wakulla and Gadsden Counties, to Faulk & Coleman, Cocoa, **$27,531.** Grand total, **$442,552.** CD 3/9. Bids 3/15, awarded 3/20.

Ia., Ida Grove—Bd. Supervs. Ida Co., Ida Grove, maintenance surfacing various secondary roads, to Robson & Johnson, Early. **$36,050.** Bids 3/14. CD 3/5—ENR 3/8.

Ia., Sibley—Osceola Co., grading, planing entrance culvert pipe, various secondary roads, to G. S. Van de Riet, Fairmont, Minn., **$26,535.** Bids 3/19. CD 3/13.

Me., Sanford—Town Bd. Selectmen, Town Hall, sidewalks on 12 streets, grade, tar parts of 8 streets, asphalt and tar binder south and north sections, to Barrett Div., Allied Chemicals & Dye Corp., 252 Allens Ave., Providence, R. I. **$25,742.**

Mass., Springfield—City, Street & Engrg. Dpt., Municipal Bldg., street repairing, imprv. Harkness Ave. Owner builds. **$49,600.**

Oregon—State Hy. Comn., State House, Salem, Prospect-Antelope Creek rock production project on Crater Lake Hy., requiring 15,000 cu. yd. crushed gravel in stockpiles, and Union Creek rock production project on Crater Lake and West Diamond Lake Hy., 12,200 yd. crushed rock in stockpiles, Jackson Co., to Guerin Bros., Linden Ave. S., San Francisco, Calif., **$31,200** and **$30,337** respectively***Burns rock production project on 3 state highways, 11,920 yd. crushed rock in stockpiles, Harney Co., to E. C. Hall Co., Tigard **$30,204;** Fort Klamath-Lobert rock production project on 5 state highways, 12,500 yd. crushed rock in stockpiles, Klamath Co., to Rogers Constr. Co., Dayton, Wash., **$24,800*****Trent-Salt Creek Falls rock production on Willamette Hy., 24,000 yd. crushed rock, Lane Co., to Fisher Bros., Oregon City, **$50,400*****Albany-Crabtree Corner section of Santiam Hy., 12,800 tons asphaltic concrete, 4,000 yd. crushed rock, Linn Co., to Warren Northwest, Inc., N.E. 102 and Warren Rds., Portland, **$72,796.** Grand total $239,737. Awarded 3/13. R. H. Baldeck, Capital, Salem, engr.

Tex., Houston—City, City Hall, resurfacing gravel and dirt streets, force account. **$90,000.**

Tex., Houston—City, City Hall, resurfacing permanently paved streets, maintenance, force account. **$144,000.**

EARTHWORK, WATERWAYS

PROPOSED WORK

Ind., Tell City—Tell City Flood Comn., C. Zoercher, chn., City Hall, imprv. flood walls damaged in recent floods. $15,000.

Pennsylvania—Baltimore & Ohio R.R. Sys., A. C. Clarke, ch. engr., Baltimore and Charles Sts., Baltimore, Md., relocating channel of Vances Run between Railroad Bridges 149 and 160, and reconstructing Bridge 149, about ¼ mi. east of Zediker, South Strabane Twp., Washington Co.

BIDS ASKED

Bids Asked April 7

Ill., Peoria—Greater Peoria Sanitary & Sewage Disposal Dist., foot of Darst St., levee enlargement, involving 64,000 cu.yd. earthwork at sewage treatment works. T. B. Casey, 201 W. Monroe St., Springfield, ch. engr.

N. S., Shelburne—Dpt. National Defense (Sea), Ottawa, Ont., reclaiming area at Bldg. 54 and retaining walls at Hanlont Naval Base. About $40,000.

Bids Asked April 9

Ia., Garner—Bd. Supervs. Hancoik Co., Garner, constructing Drainage Dist. 138, involving 48,149 cu. yd. open ditch excav., furnishing, installing 16,224 ft. 6- to 24-in. tile, 90 lin. ft. 12- to 18-in. pipe, 10 cu. yd. concrete bulkhead, placing 94 lin. ft. 18- to 60-in. pipe. Over $15,000. Bids 3/19 rejected. W. Henschen, Garner, drainage engr. CD 3/9.

Bids Asked April 17

★**Calif., Napa**—City, City Hall, constructing Conn. Valley Dam. $625,000. Plans deposit $10. A. Kempkey, Balboa Bldg., San Francisco, engr.

CONTRACTS AWARDED

†**Calif., Oakland**—U. S. Eng., 74 New Montgomery St., San Francisco, dredging at Oakland Outer Harbor, to San Francisco Bridge Co., 503 Market St., San Francisco. **$301,254.**

†**Conn., Stratford**—U. S. Eng., 31 St. James Ave., Boston, Mass., dike repairs, No. 19-023-45-Neg-106, to General Supply Co., 155 Island Brook Ave., Bridgeport, **$23,400.** Bids 3/23.

Ia., Des Moines—Polk Co., L. O. Lindstrum, aud. Des Moines, drainage construction, Drainage Dist. 45, to J. D. Armstrong, Co., Ames, **$15,331.** Bids 2/28.

†**Louisiana**—U. S. Eng., foot of Prytania St., New Orleans, approx. 62,000 cu. yd. uncompacted earthwork; and performing other incidental work, on south bank of Red River Levees, Sol. 16-047-45-85, Avoyelles Parish, to J. L. Edwards, New Roads, **$119,980.** Bids 3/20. Awarded 3/22. CD 3/12.

†**La., Mansfield**—U. S. Eng., 300 Bway., Little Rock, Ark., erosion control, to W. C. Richards, Athens, **$16,855.**

†**Missouri**—U. S. Eng., 816 Court House and Custom House, St. Louis, Zone 1, levee repair work, consisting placing approx. 115,000 cu. yd. earth in strengthening earthen levees, repairing approx. 2,000 lin. ft. eroded levees and constructing 1 gravity drainage structure in Perry Co., Drainage & Levee Dists. 1, 2 and 3, Perry Co., to E. Luhr, Columbia, Ill., **$36,985.** Bids 2/26.

Ore., Astoria—Standard Oil Co., Astoria, 15-boat mooring area on Columbia River between 4 and 5 Sts., incl. dredging, constructing 2 piers, to Gilpin Constr. Co., 4850 N.W. Front St., Portland. **$25,000.** Bids 3/15.

Tex., Houston—San Jacinto River Conservation & Reclamation Dist., Houston, water sys. imprvs., incl. 6 steel or iron pipe syphons from 10- to 24-in., and 40 to 200 ft. long, construct 5 iron or steel diversion pipe canal outlets from 21- to 30-in. and 75 to 100 ft. long with WW gate valves for pipe 12 in. and smaller, etc., to Tellepsen Constr. Co. **$23,000.** Bids 3/15. 2807 San Jacinto St. ENR 10/5.

Ont., Cobourg—Dpt. P. Wks., Ottawa, constructing southwest breakwater in harbor, to McNamara Constr. Co., Ltd., 42 Industrial St., Leeside, **$66,990.** CD 2/26.

LATIN AMERICA

British Guiana, Georgetown—Govt. of British Guiana, Georgetown, plans livestock, pasture and rice experimental station. About $226,350. Dpt. P. Wks., Georgetown, engr.

British Honduras, Belize—Colonial Govt., Belize, will construct Cayo Rd., by day labor. About **$750,000.** Dpt. P. Wks., Belize, engr.

B. W. I., Bridgetown—Govt. of Barbados, Bridgetown, plans livestock experiment station. About $153,000. Dpt. P. Wks., Bridgetown, engrs.

B. W. I., Kingston—Colonial Govt., Kingston plans central experimental station. About $180,000. Dpt. Works, Kingston, engr.

B. W. I., Kingston—Govt. of Jamaica, Kingston, plans water supply (catchment). About $225,000. Dpt. P. Wks., Kingston, engr.

B. W. I., Kingston—Govt. of Jamaica, Kingston, plans prison farm bldgs. About $122,805. Dpt. P. Wks., Kingston, engr.

B. W. I., Kingston—Govt. of Jamaica, Kingston, plans housing. About $4,000,000. Dpt. P. Wks., Kingston, engr.

B. W. I., Mona—Govt. of Jamaica, Kingston, plans reservoir. About $1,719,000. Dpt. P. Wks., Kingston, engr.

B. W. I., Plymouth—Colony of Montserrat, Plymouth, road construction, day labor. About **$135,630.** Dpt. P. Wks., Plymouth, engrs.

B. W. I., Plymouth—Colony of Montserrat, Plymount, plans water supply. About $34,425. Dpt. P. Wks., Plymouth, engr.

B. W. I., Roseau—Colony of Dominica, Roseau, road construction, by day labor. About **$160,650.** Dpt. P. Wks., Roseau, engr.

B. W. I., Roseau—Colonial Govt., Roseau, plans housing. About $2,700,000. Dpt. Works, Roseau, engr.

Mexico—State of Jalisco, G. Barraza, gov., Capitol City, Guadalajara, plans construction, imprvs. sewage, water drainage, etc., some federal health aid, $4,500,000.

Mexico—State of Jalisco, Capital City, Guadalajara, plans schools. $600,000.

Mexico, Mexico City—Federal District, Gomez, mayor, Mexico City, will pave principal streets, by day labor. **$2,500,000.**

Mexico, Mexico City—Industrial de Cia. Plastico, Madero, 69, office 202, Mexico, D. F., plans factory. $100,000.

Mexico, Mexico City—Maito, S.A., Roberto L. Mantilla Molina, mgr., Madero 1-212, Mexico, D.F., plans factory making malt sugar suitable for infants feeding. $125,000.

Mexico, Mexico City—Municipal Govt., Palacio Municipal, plans sports park. $1,000,000.

Mexico, Navojoa—Municipal Govt., Palacio Municipal, Navojoa, Sonora, plans modernization, expan. of WW. $758,000.

Mexico, Reynosa-Matamoros—State of Tamaulipas, Capital City, Tampico, takes bids within 90 days, agricultural schools above area. $250,000.

Mexico, San Luis Ptosi—State Govt., Palacio del Estado, San Luis Potosi, plans water modernization, expan. $1,305,000.

Mexico, San Pedro de los Pinos—Hacienda Maleable de Mexico, Av. Tolbeca, 125, San Pedro de los Pinos, D. F., plans scissors factory. $150,000.

Mexico, Vera Cruz—Municipal Govt., Palacio Municipal, plans sports stadium, accommodating 50,000. $210,000.

Panama, Canazas—Republic of Panama, Panama City, plans electric light and power plant and distr. sys. Dpt. P. Wks., Panama City, engr.

Panama, El Cristo de Aquadulce—Republic of Panama, Panama City, plans electric light and power plant, distr. sys. Dpt. P. Wks., Panama City, engr.

Panama, El Valle de Anton—Republic of Panama, Panama City, plans electric light and power plant, distr. sys. $100,000.

Panama, La Pintada—Republic of Panama, Panama City, plans electric light and power plant and distr. sys. $100,000. Dpt. P. Wks., Panama City, engr.

Panama, Santa Fe—Republic of Panama, Panama City, plans electric light and power plant, dist. sys. $150,000.

Panama, Tole—Republic of Panama, Panama City, plans electric light and power plant, distr. sys. Over $100,000.

Santo Domingo, Ciudad Trujillo—Dominican Republic, Ciudad Trujillo, plans extend breakwater and dock. $150,000.

Santo Domingo, Ciudad Trujillo—Republic of Dominica, Ciudad Trujillo, plans completion Executive Palace. $300,000.

ATIN AMERICA (Cont'd.)

Venezuela, Caracas—Creole Petroleum Corp., Caracas, plans 40,000 bbl. oil refinery. $200,000.

Venezuela, Caracas—Venezuela Petroleum Corp., Caracas, and c/o Sinclair Oil Corp., 630 5 Ave., New York, N. Y., U. S. A., plans combined casinghead-gasoline-recovery and maintenance-of-pressure plant, near here, $1,000,000.

Venezuela, Caracas—Municipality, will construct Avenida Simon Bolivar, by day labor, 1,600,000 bolivars.

Venezuela, Puerto de la Cruz—The Compania Consolidada de Petroleo, Caracas, plans 35,000 bbl. oil refinery, $150,000.

PUBLIC BUILDINGS

PROPOSED WORK

†**Ariz., Phoenix**—Airsearch Mfg. Co. of Arizona, Inc., S. 28th St., addnl. plant bldg. $365,000. Defense Plant Corp. will finance.

†**Calif., Alameda** — Pub. Housing Auth., NHA, 760 Market St., San Francisco, plans by Dinwiddie, Kent, Hass & Buckley, 525 Market St., San Francisco, 328 temporary family dwelling units, Calif. 4998-N.

Calif., Bakersfield — Bakersfield School Dist., Bakersfield, plans by E. L. McCoy, 135 Hay Bldg., 1 story, 16 classroom school. $200,000. E. C. Hillman, 816 W. 5 St., Los Angeles, engr.

†**Calif., Berkeley** — Pub. Housing Auth., NHA, 760 Market St., San Francisco, plans by Williams, Koue & Kirby, 428 13th St., Oakland, 56 temporary family dwelling units, Calif. 4034-N.

†**Calif., Inyokern**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., plans by Homes & Narver, 523 S. Spring St., Los Angeles, bldgs., Naval Ordnance Training Station.

†**Calif., Los Angeles**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., warehouse, $150,000; recreation bldg. for general medical and surgical patients, $200,000; attendants' quarters, $250,000; administration bldg., $1,100,000.

†**Calif., Montebello**—Federal Works Agency, 2233 Fulton St., Berkeley, 11-classroom addn. to Suva St. School, and 6-classroom addn. to Eastmont School, for Montebello Unified School Dist. $164,000.

†**Calif., Oakland**—Pub. Housing Auth., NHA, 760 Market St., San Francisco, plans by M. Corbett, 210 Post St., San Francisco, nine 1 and 2 story bldgs., containing 56 family dwelling units serving San Leandro and Oakland Naval Hospital, Calif. 4909-N. CD 2/20—ENR 3/1.

†**Calif., Port Chicago**—Federal Works Agency, 2233 Fulton St., Berkeley, fire station and equip., for Bay Point Fire Dist. $12,450.

†**Calif., Rodeo** — Federal Works Agency, 2233 Fulton St., Berkeley, fire station and equip., for Rodeo Fire Protection Dist. $11,000.

†**Calif., San Luis Obispo**—Pub. Housing Auth., NHA, 760 Market St., San Francisco, plans by F. J. McCarthy, J. D. Wickenden & F. C. Bernardi, 507 Montgomery St., San Francisco, and B. Douglas, 75 Benton Way, San Luis Obispo, 30 housing units, involving dismantling existing housing units, at West Vaca and reassembling them into 8 bldgs. CD 1/15—ENR 1/18.

†**Calif., Upland**—City Housing Auth., Upland, 200 temporary dwelling units, for NHA. $400,000.

†**Calif., Vacaville**—Pub. Housing Auth., NHA, 760 Market St., San Francisco, plans by T. F. Pfleuger, 580 Market St., San Francisco, 44 temporary family dwelling units, Calif. 4058-N. CD 3/6—ENR 3/8.

†**Calif., Vallejo**—Pub. Housing Auth., NHA, 760 Market St., San Francisco, plans by A. Roller, 1 Montgomery St., San Francisco, 192 temporary family dwelling units, Calif. 4999-N.

†**Colo., Fort Lyon**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., replacing Infirmary Bldg. 201. $850,000.

†**Conn., Newington** — Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., General Medical and Surgical Bldg. addn. $724,893. CD 2/7—ENR 2/15.

†**Ga., Atlanta**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., General Medical and Surgical and Tuberculosis Bldgs. $2,071,124. CD 1/12—ENR 1/18.

†**Ind., Evansville**—Protestant Deaconess Hospital, 600 Mary St., plans completed by Schmidt, Garden & Erickson, 104 S. Michigan Ave., Chicago, Ill., and bids soon 5 story, 45x80 ft., and 1 story, 35x105 ft., brick, stone, rein.-con., structural steel hospital addn. and nurses' home, Ind. 12-211. $200,000. FWA.

†**Ind., Gary**—Bd. School Trustees, 425 Garfield St., plans by J. E. Wildermuth, 527 Bway., 2 story, bsmnt., brick, stone, rein.-con., structural steel high school, Ind. 12-226. $300,000. FWA. CD 3/13—ENR 3/15.

†**Ind., Indianapolis** — Veterans Adm., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., General Medical and Surgical Bldg. addn. $1,423,898. CD 8/21—ENR 8/24.

†**Kan., Camargo**—Tennessee Gas & Transmission Co., Commerce Bldg., Houston, Tex., 8,000 hp. compressor station. $1,030,000. Defense Plant Corp. will finance.

†**Kan., Wadsworth**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., theatre. $250,000.

†**La., Micheaud**—Pub. Housing Auth., NHA, 1411 Electric Bldg., 7 and Lamar Sts., Fort Worth 2, Tex., plans by Rosenthal, Kessels & Jones, 226 Carondelet St., New Orleans, 25 frame dwellings and 250 huts adjacent to housing, La. 16100. $600,000.

†**La., New Orleans**—Pub. Housing Auth., NHA, 1411 Electric Bldg., 7 and Lamar Sts., Fort Worth 2, Tex., 250 family dwelling units, La. 16112; 25 family dwelling units, La. 16113.

La., Pineville—State Dpt. Finance, Capitol Annex, Baton Rouge, rejected bids Mar. 15, steam laundry, at State Colony and Training School. Will readvertise. CD 3/7—ENR 1/4.

†**Md., Camp Dietrick (Frederick)**—U. S. Eng., 21 St. and Virginia Ave. N.W., Wash. 25, D. C., machine shop.

†**Mass., Bedford**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., administration bldg. addn. $100,000.

Mass., Chatham — Town Bd. Selectmen, Town Hall, revised plans by Edwards Sears Read & Assoc., 177 State St., Boston, two 1 story, 24x100 ft., concrete, timber fish packing houses, foot of Barcliff Ave. To exceed $40,000 with equip. H. E. Bailey, 177 State St., Boston, engr. CD 3/12—ENR 3/15.

†**Mass., Northampton** — Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., brick, concrete laundry. $40,000 incl. equip.

†**Mass., Rutland Heights** — Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., tuberculosis bldg. addn. $776,670. CD 2/2—ENR 2/8.

†**Mass., West Roxbury**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., General Medical and Surgical Bldg. addn. $2,071,124. CD 1/9—ENR 1/11.

†**Mich., Dearborn**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., recreation bldg. $250,000.

†**Mich., Dearborn** — Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., General Medical and Tuberculosis Bldg. addn. $2,614,794. CD 1/16—ENR 1/18.

Mich., Detroit—Dpt. P. Welfare, 176 E. Jefferson St., remodeling, imprv., brick, steel, concrete receiving hospital. $385,000. G. R. Thompson, City Hall, city engr.

†**Mich., Fort Custer**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., administration bldg. addn., boiler house changes, altering kitchen and dining hall. $235,000.

†**Miss., Arcola**—Tennessee Gas & Transmission Co., Commerce Bldg., Houston, Tex., 8,000 hp. compressor station, near here. $1,030,000. Defense Plant Corp. will finance.

†**Mo., Excelsior Springs** — Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., tuberculosis bldg. addn. $1,294,452.

†**Neb., Hastings**—Mary Lanning Memorial Hospital, Hastings, plans by Davis & Wilson, 525 S. 13 St., Lincoln, hospital addn., Neb. 25150-N. $181,750. FWA.

†**Nev., Reno**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., general medical and surgical bldg. addn. $647,226. CD 1/16—ENR 1/18.

†**N. M., Alamogorda**—Pub. Housing Auth., NHA, 1309 Electric Bldg., Fort Worth, Tex., plans by W. C. Kruger, Seno Plaza, Santa Fe, 100 family stop-gaps dwelling units, N.M. 29188.

†**New York**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., veterans hospital in Broome Co.

†**N. Y., Saratoga Springs** — Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., veterans hospital.

†**N. Y., Scotia**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., plans by F. Grad & Sons, 48 Commerce St., Newark, N. J., additional bldgs., Naval Supply Depot. CD 2/3.

†**N. C., Charlotte**—Reconstruction Finance Corp., J. A. Campbell, mgr., 109 Third St., bids soon warehouse and railroad siding.

†**O., Brecksville**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., tuberculosis bldg. addn. $678,287.

†**O., Chillicothe**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., Occupational Therapy Bldg. 3 addn. $80,000.

Ore., Coquille—Coquille School Dist. 8, Coquille, $200,000 bond, election June 22, school, high school wing. Allyn & Stokes, High Bldg., Portland, archts.

†**Ore., Eugene**—Pub. Housing Auth., NHA, 5 Ave. and Union St., Seattle 1, Wash., rejected bids Mar. 17, 50 prefabricated family housing units, Proj. 35311. Wick, Scott & McDevitt, Spalding Bldg., Portland, archts. CD 3/9—ENR 3/15.

†**Ore., Troutdale**—Reconstruction Finance Corp., 811 Vermont Ave. N.W., Wash. 25, D. C., bids soon surplus storage warehouse, with 100,000 sq.ft. storage space.

†**Pa., Wilkes-Barre** — Laux Mfg. Co., Wilkes-Barre, shell mfg. plant, $500,000. Defense Plant Corp. will finance.

†**R. I., Providence** — Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., plans by R. E. Guard, superv. archt., c/o owner, 8 story., brick, steel hospital, two 7-story wings, Davis Park. $500,000.

†**Tenn, Cross Plains**—Tennessee Gas & Transmission Co., Commerce Bldg., Houston, Tex., 8,000 hp. compressor station, near here. $1,030,000. Defense Plant Corp. will finance.

†**Tenn., Hictory Valley**—Tennessee Gas & Transmission Co., Commerce Bldg., Houston, Tex., 8,000 hp. compressor station, near here. $1,030,000. Defense Plant Corp. will finance.

†**Tex., Dallas**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., General Medical and Surgical bldg. addn. $2,588,905.

†**Tex., Fort Sam Houston**—U. S. Eng., Fort Sam Houston, converting redistribution center area, incl. fifteen 63-man barracks and consolidation of several other bldgs. into mess bldgs., etc. installing operating rooms and clinical facilities, etc., at Brooke General Hospital. $1,053,658. CD 3/12—ENR 3/15.

†**Tex., Fort Worth**—Castleberry Common School Dist. 93, Fort Worth, Junior High School, Tex. 41-713. FWA. A. B. Withers, Insurance Bldg., archt.

†**Tex., Hardin**—Roxboro Steel Co., Hardin, carbon black plant. $350,000. Defense Plant Corp. will finance.

†**Tex., Raymondville**—Raymondville Ind. School Dist., Raymondville, plans by Hedrick & Lindsley, 811 So. Standard Bldg., Houston, school. $150,000. Bonds voted. FWA. CD 3/1—ENR 3/28 under Postwar Projects.

†**Tex., San Miguel**—Tennessee Gas & Transmission Co., Commerce Bldg., Houston, dehydration plant. $350,000. Defense Plant Corp. will finance.

†**Tex., Seagraves**—Columbian Carbon Co., 41 E. 42 St., New York, N. Y., carbon black plant. $1,500,000. Defense Plant Corp. will finance.

†**Va., Roanoke**—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., occupational therapy shops and gymnasium. $100,000.

BIDS ASKED

Bids Asked in April

†**Conn., Naugatuck**—Naugatuck Chemical Co., Elm St., 3 story, 45x60 ft., brick, steel factory, for Rubber Reserve Co., 811 Vermont Ave. N.W., Wash. 25, D.C. $45,000. Fletcher Thompson, Inc., 211 State St., Bridgeport, engrs. CD 3/13—ENR 3/15.

Bids Asked April 3

Ga., Cedartown—Polk General Hospital, J. M. Cobb, sec.-treas., in office of Abreu & Robeson, archts., 802-822 Marietta St. Bldg., Atlanta, hospital. Plans deposit $25. M. L. Jorgensen, 2233 Virginia Pl. N.E., Atlanta, assoc. archt.

Bids Asked April 4

†**N. Y., Jamaica**—Mary Immaculate Hospital, 152-11 89 Ave., Jamaica, nurses home and training facilities, alterations, addns. NY-30254. $23,000. FWA. W. J. Boegel, 516 5 Ave., New York, Zone 18, archt. CD 10/23—ENR 10/26.

Bids Asked April 6

†**Calif., Stockton**—Pub. Housing Auth., NHA, 760 Market St., San Francisco, 36 temporary family dwelling units, Calif. 4025-N. C. O. Peterson & W. R. Spackman, 604 Mission St., San Francisco, archts. CD 3/20—ENR 3/22.

Bids Asked April 7

†**Calif., Mojave**—Pub. Housing Auth., 816 W. 5 St., Los Angeles, 40 family dwelling units, Calif. 4993-N. A. Monaco, 3021 Waverly Dr., Los Angeles archt. CD 3/6—ENR 3/8.

†**Calif., Oceanside**—Pub. Housing Auth., NHA, 816 W. 5 St., Architects Bldg., Los Angeles, 200 temporary family dwelling units, Calif. 4994-N. Risley, Gould & Lodge, 220 S. Westmoreland St., Los Angeles, archts. CD 3/6—ENR 3/8.

†**Calif., Oxnard**—Pub. Housing Auth., NHA, 816 W. 5 St., Los Angeles, 80 temporary family dwelling units, Calif. 45054-N.

PUBLIC BLDGS. (Bids Asked, Cont'd.)

$250,000. Soule & Murphy, 116 E. Sola St., Santa Barbara, archts. CD 3/6—ENR 3/8.

†**Calif., San Diego**—Pub. Housing Auth., NHA, 816 W. 5 St., Los Angeles, 400 war dwelling units, Calif. 4995-N. Bodmer, Wurdeman & Becket, 6536 Sunset Blvd., Los Angeles, archts. CD 3/6—ENR 3/8.

Bids Asked April 10

†**Calif., Barstow**—Pub. Housing Auth., NHA, 816 W. 5 St., Architects Bldg., Los Angeles, 44 family dwelling units, Calif. 4989-N. CD 3/6—ENR 3/8.

†**Calif., San Diego**—Pub. Housing Auth., NHA, 816 W. 5 St., Los Angeles, 96 temporary family dwelling units, Calif. 4040-N. Giberson, Adams & Smith, 113 E. Los Feliz Rd., Glendale, archts. CD 3/6—ENR 3/8.

Calif., Vallejo—State P. Wks. Bldg., Sacramento, 5 staff cottages at California Maritime Academy, Carquinez Straits. Plans deposit $25. A. Boyd, P. Wks. Bldg., Sacramento, state archt.

Bids Asked April 12

†**Calif., San Diego**—Pub. Housing Auth., NHA, 816 W. 5 St., Architects Bldg., Los Angeles, 240 temporary family dwelling units, Calif. 4037-N. Wilson, Hope & Criley, 607 Architects Bldg., Los Angeles, archts. CD 3/6—ENR 3/8.

Bids Asked April 14

★†**Calif., Long Beach**—Pub. Housing Auth., NHA, 816 W. 5 St., Los Angeles, 192 temporary family dwelling units, Calif. 4992-N. $550,000. Parkington, Lyndon & Wing, Architects Bldg., Los Angeles, archts. CD 3/6—ENR 3/8.

Bids Asked April 17

†**Calif., El Centro**—Pub. Housing Auth., NHA, 816 W. 5 St., Architects Bldg., Los Angeles, 152 temporary family dwelling units, Calif. 4028-N. S. Wilson, 3681 6 St., Riverside, archt. CD 3/6—ENR 3/8.

†**Calif., Holtville** — Pub. Housing Auth., NHA, 816 W. 5 St., Los Angeles, 48 temporary family dwelling units, Calif. 4046-N. S. Wilson, 3681 6 St., Riverside, archt. CD 3/6—ENR 3/8.

†**Calif., Salton Sea**—Pub. Housing Auth., NHA, 816 W. 5 St., Los Angeles, 8 temporary family dwelling units, Calif. 4047-N. S. Wilson, 3681 6 St., Riverside, archts.

Bids Asked April 18

†**Calif., San Diego**—Pub. Housing Auth., NHA, 816 W. 5 St., Los Angeles, 80 temporary family dwelling units, Calif. 4997-N. Giberson, Adams & Smith, 113 E. Los Feliz Rd., Glendale, archts. CD 3/6—ENR 3/8.

Bids Asked April 19

†**Calif., Santa Barbara**—Pub. Housing Auth., NHA, 816 W. 5 St., Los Angeles, 76 temporary family dwelling units, Calif. 4027-N. $350,000. Soule & Murphy, 116 S. Sola St., Santa Barbara, archts. CD 3/6—ENR 3/8.

Bids Asked April 20

†**Calif., San Diego**—Pub. Housing Auth., NHA, 816 W. 5 St., Los Angeles, 200 temporary family dwelling units, Calif. 4996-N. Weston, Reichardt & Johnson, 1151 S. Bway., Los Angeles, archts. CD 3/6—ENR 3/8.

Bids Asked April 23

La., Frost—Livingston Parish School Bd., E. S. Easterely, supt., Livingston, school. Plans deposit $15.

Bids Asked May 8

★†**Wash., American Lake**—Veterans Admin., Vermont Ave., between H and I Sts. N.W., Wash. 25, D. C., Infirmary Bldg. 2 and Storehouse Bldg. 21 addns., Main Bldg. 81, Acute Bldg. 84, Women Patients Bldg. 84, roads, walks, grading, etc. CD 2/16/44—ENR 2/24/44.

Bids Asked

★†**La., Lake Charles**—Cities Service Refining Corp., 70 Pine St., New York, N. Y., plant. $15,000,000. Defense Plant Corp. will finance. CD 3/21.

†**Mass., Fort Devens (Sta. Ayer)**—U. S. Eng., 31 St. James Bldg., Boston, (selected bidders) 3 bldg. addns., alterations, No. 19-023-45-NEG-107. $100,000.

†**Mass., Taunton**—U. S. Eng., 31 St. James Ave., Boston, (selected bidders), bldgs., No. 19-023-45-NEG 105.

★†**Tex., Nederland**—Pure Oil Co., Port Arthur and Nederland, aviation lubricating plant, at Smith Bluff, near here, $5,500,000. Defense Plant Corp. will finance. CD 3/21.

LOW BIDDERS

†**Mo., Neosho**—Pub. Housing Auth., NHA, 201 N. Wells St., Chicago 6, Ill., moving 116 portable dwelling units from Bauxite, Ark., to new site and re-erecting into 100 dwelling units, 28 bldgs., No. 23083, from W. R. Grimshaw Constr. Co., 1326 Hunt Bldg., Tulsa, Okla. $284,500. Marshall & Brown, 114 W. 10 St., Kansas City, Mo., archts. CD 2/8—ENR 2/15.

†**N. J., Atlantic City**—U. S. Eng., Penn-Mutuual Bldg., Walnut and 6th Sts., Phila., Pa., 1 story frame WAC barracks, from Anthony P. Miller Co., 3333 Artic Ave., $180,000.

†**N. Y., Greenhaven**—U. S. Eng., 120 Wall St., New York, Zone 5, Mar. 22, recreation bldg. and motor maintenance shop, from A. Barbaresi & Son., Inc., Southbury, Conn., masonry $139,700; frame $136,700. CD 3/16.

†**Tex., Houston**—U. S. Eng., 25 St. and Avenue U, Galveston, Mar. 16, addnl. reconditioning bldgs., facilities, utilities into fuse mfg. plant, Ser. W-41-243-eng-45-M1-4, from Bace Marshall Constr. Co., 4005 Center St. $51,490. CD 2/6—ENR 2/22.

★†**Va., Fort Belvoir**—U. S. Eng., 21 St. and Virginia Ave. N.W., Wash. 25, D. C., Mar. 21, motor shops, etc., from Harwood & Nebel Constr. Co., Inc., 1520 K St. N.W., Wash., D. C., $880,000. CD 3/15.

†**Wis., Oshkosh**—The Bell Machine Co., 53 Jackson Dr., Mar. 15, rein.-con., structural steel, concrete block factory, from C. R. Mayer & Sons Co., 50 State St., $106,847. Defense Plant Corp. will finance. CD 3/8—ENR 3/15.

CONTRACTS AWARDED

†**Ala., Theodore**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., magazine barricades, at Naval Magazine, NOY 11896, to Mac's Constr. Co., Inc., 2800 N. Claiborne Ave., New Orleans, La., $38,973.

†**Conn., Middlebury**—U. S. Time Corp., 630 Fifth Ave., New York, N. Y., temporary fuse loading factory unit, to Austin Co., 19 Rector St., New York, N. Y. Est. over $40,000. Defense Plant Corp. will finance.

†**D. C., Bellevue**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., warrant officers training facilities at Naval Research Laboratory, NOY 11578, to V. R. Beauchamp Inc., 2601 Connecticut Ave. N.W., Wash., D. C., $317,000. CD 3/5—ENR 3/8.

★†**D. C. Wash.**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., addnl. 2 stories on Naval Gun Factory, Navy Yard, NOY 10749, to Hedin Constr. Co., 820 Michigan Ave. N.E., $524,000. CD 3/15—ENR 3/22, under LB.

†**D. C., Wash.**—U. S. Eng., 1 and Douglas Sts. N.W., Wash., Zone 24, mess addns., Walter Reed General Hospital, Contr. W-49-080-eng-242, to Cramer-Vollmerhausen Co., 2601 Connecticut Ave. N.W., Wash., D. C. $157,768. CD 1/25—ENR 3/1.

†**Ga., Dublin**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., hospital addns., imprvs., Spec. 15966, NOY 11667, to J. A. Jones Constr. Co., Inc., 209 W. 4 St., Charlotte, N. C., $321,000. CD 3/6—ENR 3/8.

†**Ind., Hammond**—Pullman Standard Car Mfg. Co., 79 E. Adams St., rebuilding 1 story, 275x1,000 ft., brick, steel Factory Bldg. 10, and rehabilitation, to Henry Ericson Co., 228 N. LaSalle St., Chicago, Ill. Defense Plant Corp. will finance. W. Jurden, 25 Bway., New York, N. Y., archt.

†**Kansas**—U. S. Eng., 10 E. 17 St., Kansas City, Mo., bldgs., Sunflower Ordnance Works, Johnson Co., Contr. W-23-028-eng-771, to Winn-Senter Constr. Co., Railway Exchange Bldg., Kansas City, Mo. $87,490.

★†**Maryland**—U. S. Eng., 21 St. and Virginia Ave. N.W., Wash. 25, D. C., map service bldg. warehouse, floodlighting and grading, at Army Map Service, vicinity of Dalecarlia Reservation, to John McShain, Inc., 17 and Spring Garden Sts., Phila., Pa. Est. $4,000,000. Awarded 3/21. Porter & Lockie. Metropolitan Bank Bldg., Wash., D. C., archt. CD 3/21.

†**Mass., Taunton**—U. S. Eng., 31 St. James Ave., Boston, bldgs., No. 19-023-45-Neg-105, to John Bowen Co., 126 Newbury St., Boston. $70,750. CD 3/22—ENR 3/29.

†**Mo., St. Louis**—U. S. Eng., 816 U. S. Courthouse & Customhouse, St. Louis, bldg. addns., excav., etc., Chevrolet Shell Div., Forging Plant, Contr. W-23-065-eng-643, to G. L. Tarlton, Inc., 5505 Dale St. $133,559.

★†**Neb., Hastings**—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., magazines and addnl. bldgs., etc., NOY 11086, to Maxon Constr. Co., 131 N. Ludlow St., Dayton, O., approx. $6,291,000. CD 3/19, under LB.

†**N. J., Camp Kilmer (br. New Brunswick)**—U. S. Eng., 120 Wall St., New York 5, N. Y., cold storage bldg addn., to J. L. Muscarella, 115 Midland Ave., Garfield. $56,170. Bids 3/7.

★†**N. M., Eunice**—Charles Enew Johnson & Co., 140 Pearl St., New York, N. Y., carbon black plant, addnl. facilities, separate contracts. $3,000,000. United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa., engrs. Defense Plant Corp. will finance.

†**N. M., Santa Fe**—U. S. Eng., Albuquerque, bldgs., etc., in expan. program for medical detachment and WAC occupancy, to Rob. E. McKee, 1918 Texas St., El Paso, Tex. $327,639. CD 3/20—ENR 3/22.

†**O., Dayton**—U. S. Eng., 522 U. S. Post Office & Courthouse, Cincinnati, warehouse, troop housing, ramps and dock lights, Dayton Signal Depot, Contr. W-33-015-eng-579, to H. W. Miller, Covington, Ky. $82,534.

★†**Okla., Guymon**—Cabot Carbon Co., 77 Franklin St., Boston, Mass., brick, steel plant, to Stone & Webster Engrg. Co., 49 Federal St., Boston, Mass. Est. $3,000,000. Defense Plant Corp. will finance. CD 3/22.

Ore., The Dalles—Port of The Dalles, The Dalles, 14-bin concrete grain storage and to grain elevator, to Henry George & Son Hutton Bldg., Spokane, Wash., and M State Constr. Co., The Dalles. $96,813. 8/20. CD 3/5—ENR 3/8.

†**Pa., Carlisle**—Carlisle Tire & Rubber Carlisle, mfg. bldg., to H. B. Lackey, South Hanover St., $220,000. Defense Corp. will finance.

†**Tenn., Memphis**—U. S. Eng., Post Off Bldg., Savannah, Ga., valve house for sprin ler sys. at Quartermaster Depot, to A. Henderson Co., 215 Latta Arcade, Charlot N. C., $41,500.

†**Virginia**—U. S. Eng., Fort Norfolk, ha ing, all appurtenant work, McGuire Gene Hospital, Contr. W-44-110-eng-469, Chesa field Co., to Virginia Engineering Co., Melson Bldg., Newport News. $368,842.

†**Wash., Fort Lewis**—U. S. Eng., Tac Tower, 7 and Olive Way, Seattle, Zone gymnasium bldg., at Madigan General Ho pital, Neg. 1104, to C. F. Davidson, Pre dent Bldg., Tacoma, $52,291. Bids 3/14.

†**Wash., Tacoma**—Pub. Housing Au NHA, Skinner Bldg., 5 Ave. and Union Seattle, Zone 1, 216 dormitory units, American Lake Housing, Wash. 45309, Rainier Constr. Co., American Bldg., Madison Sts., Seattle, Zone 4. $161,972. 3/12—ENR 3/15 under LB.

†**Wis., Merrimac**—U. S. Eng., 408 Fede Bldg., Milwaukee. 1 story, 107x230 ft., co munity bldg., Wis. 47086, to J. P. Cullen Son, 109 S. Main St., Janesville. $77,397. La Law, Potter & Nystrom, 121 S. Pinckney Madison, archts.

★†**T. H., Honolulu**—U. S. Eng., Honolu A-E-M contract for 10 story Tripler Hospital, two 5 story and two 4 story w bsmnt. and tower, rein.-con. to York & Sa yer 101 Park Ave., New York, N. Y. Est. $16,000,000. CD 2/8—ENR 2/15.

B. C., Esquimalt—Dpt. National Defe (Sea), Ottawa, Ont., construct shop H.M.C. Dockyard, to Bennett & White Con Co., Ltd., 510 West Hastings St., Vancouv $200,805.

Ont., Ottawa—Dpt. P. Wks., Ottawa, ext to Mines and Resources Laboratories C bld on Booth St., to A. I. Garwock, Regent Bld Sparks St., about $80,000. C. D. Sutherla c/o owner, archt. CD 2/21—ENR 3/1.

Ont., Ottawa—South African Govt., Sparks St., stone, concrete block bldg. add 5 Rideau Gate, corner Sussex St., to B. Moore, 419 3 Ave., $330,000. Richards Abra, 55 Metcalfe St., archts.

Que., Knowlton—School Municipality Knowlton, high school, to John F. Wicke den Co., Ltd., Ameau Bldg., Three Rive about $175,000. CD 2/15—ENR 3/1.

COMMERCIAL BUILDINGS

PROPOSED WORK

Calif., Hermosa Beach—South Bay Co munity Hospital, c/o S. E. Lunden, archt Rowan Bldg., Los Angeles, 50-bed hospita Sepulveda Blvd. and Gould Lane, $468,0 FWA funds requested.

Ind., Anderson—S. Anderson Realty Co 3711 Main St., 50 new residences in Meado brook and Belvidere and Crestlawn addns $275,000 or more.

Ind., Anderson—Byrum Realty Co., 7 College Dr., 30 new dwellings, $160,000 more.

Pa., Carlisle—Carlisle Hospital, J. P. Ke han, pres., plans by F. G. Dempwolf, Co tinental Sq., York, hospital alteration addn., $400,000.

S. D., Huron—Mrs. Barbara Tams, Huro plans by Perkins & McWayne, 322 Paul St., Sioux Falls, hotel. $200,000.

Tex., Dallas—St. Paul Hospital, 12 Bryan St., plans by B. W. Lanum, Tex Bank Bldg., nurses' home. $150,000 C 3/23.

CONTRACTS AWARDED

Ill., Chicago—M & B, Inc., 9118 S. Ash land Ave., masonry contract thirty-six story brick residences, to C. A. Anderso 3345 W. 61 St. Est. $162,000. Luther Christensen, 9453 S. Ashland Ave., archt

Mass., Fall River—New England Tel. Tel. Co., 50 Oliver St., Boston, brick, ste telephone bldg., Main St., to E. Turgeon, 4 Turks Head Bldg., Providence, R. I. $150,000. Howe & Prout, 1016 Turks Hea Bldg., Providence, R. I., archts. Bids 2/1 CD 3/9—ENR 3/15.

INDUSTRIAL BUILDINGS

PROPOSED WORK

Calif., Burbank—WAREHOUSE—Lockhee Aircraft Corp., 2555 N. Hollywood Way, awa lets contract 200x400 ft. tooling warehous mill type, wood trusses, at Plant B-3. Ov $40,000.

INDUSTRIAL BLDGS. (Proposed Work. (Cont'd.)

Calif., Oakland—PLANT—Oliver Tire & Rubber Co., $443 San Pablo Ave., plant addn. $400,000.

Conn., Hartford—SERVICE GARAGE—Owner, c/o Kane & Fairchild, archts., 49 Pearl St., revising plans 1 story, 45 x 100 ft. with 40 x 100 ft. wing, brick, steel frame addns. $40,000. Former bids rejected. CD 2/6—ENR 3/8.

Del., Wilmington—WHEEL SHOP, etc.—Pennsylvania R.R., J. L. Gressitt, ch. engr., Broad St. Station Bldg., 1617 Pennsylvania Blvd., Phila. 4, Pa., sketches by Ballinger Co., 105 S. 12 St., Phila., Pa., wheel shop and cafeteria. $100,000.

Ga., Atlanta—DAIRY PLANT—Southern Dairies, Glen Iris Dr., bids soon dairy plant addn. $50,000. Eubanks & Caldwell, Inc., Atlan. Va., archt.

Ill., Bloomington—PLANT—C. Wagner, archt., 133 W. 4 St., Williamsport, Pa., soon lets contract mfg. plant for Sylvania Electric Products Co. Inc., J. J. Woltmann, engr., Bloomington. $250,000.

Ill., Chicago—FACTORY—Ideal Cabinet Co., 3914 W. Cornelia Ave., sketches completed by S. Klefstad, 3600 W. Fullerton Ave., 1 story, 28 x 100 ft., brick, factory addn.

Ind., Fort Wayne — PLANT — Phelps Dodge Copper Products Corp., Lincoln Hy. E., 1 story, brick, rein.-con., structural steel mfg. plant on 31 acre site, Lincoln Hy. East of Meyer Rd. $4,500,000.

Ind., Indianapolis—POWER PLANT—Indianapolis Power & Light Co., 17 N. Meridian St., 1 story, brick, rein.-con., steel and structural steel power plant addn., Harding St. Plant, $3,600,000. Gibbs & Hill, Inc., 450 7 Ave., New York, N. Y., consult. engr.

Ind., Lapel—PLANT—Standard Materials Corp., 2300 Ky. Ave., Indianapolis, reconstructing plant purchased from H and R Stone Co. $40,000 with equip.

La., Monroe—MEASURING STATIONS—United Gas Pipe Line Co., 1525 Fairfield Ave., Shreveport, 2 measuring stations on 40 mi. main pipeline, Monroe area. $100,000.

Md., Baltimore—SHOP—Crown Cork & Seal Co., Eastern Ave., soon lets contract 1 story, steel, brick machine shop, concrete fdns. Federal, Latrobe and Barclay Sts. $50,-000. H. R. White, Jr., 10 W. Chase St., archt.

Md., Salisbury—WAREHOUSES—John H. Quiany & Sons, Salisbury, repairing 4 warehouses, damaged by fire, $75,000.

Mont., Billings — TERMINAL — Freightways Terminal Co., 2155 Northlake Ave., Seattle, 3, Wash., rebuilding 100x200 ft., rein.-con., freight terminal, destroyed by fire. $100,000.

N. J., Newark—FACTORY—Westinghouse Elec. & Mfg. Co., foot of Haynes Ave., soon lets contract altering factory bldg. $100,-000.

N. C., Wilson—PLANT—Neuhoff, Inc., Lorenze Neuhoff, Jr., mgr., Salem, Va., meat packing plant, 60 acre site on Hy. 301 A. South of here. $50,000.

Ore., Freewater—WAREHOUSE—American Can Co., 230 Park Ave., New York, N. Y., 150 x 200 ft., tile, concrete warehouse. $120,000.

Ore., Milton—PLANT—Blue Mountain Prune Growers' Cooperative, Milton, bids soon packing and cold storage plant addn. $50,000. E. G. Morgan & H. E. Crawford, 1st National Bank Bldg., Walla Walla, Wash., archts.

Pa., Reading—PLANT—D. R. Buchert & Son, Reading, rebuilding plant, destroyed by fire. $50,000.

Pa., Scranton—ABATTOIR—Udolph Oldakowski, 240 Elm St., plans by M. Frutchman, 400 Chestnut St., Phila., abattoir. $75,000.

Pa., Steelton — FOUNDRY — Bethlehem Steel Co., W. B. Lang, asst. gen. mgr., 333 Spruce St., steel foundry addn. $85,000.

R. I., Bristol—FACTORY—U. S. Rubber Co., 500 Wood St., soon lets contract 2 story, 110 x 160 ft., brick Factory Bldg. 35, $125,000.

R. I., Cranston—FACTORY—Atlantic Tubing & Rubber Co., Mill St., soon lets contract, factory alterations, steam and water lines, electrical work for motors and sub-station. $80,000. CD 2/21—ENR 3/1.

R. I., West Warwick—WAREHOUSE, etc.—Warwick Club Ginger Ale Co., 108 Pond St., sketches brick warehouse and garage, Pond St. $45,000.

Tex., Alamo—PLANT—A. F. Buchanan, 401 W. School St., 1 story, brick, rein.-con., sheet metal, etc. dehydration plant, $45,000.

Tex., Amarillo — GARAGE UNIT — Bert Steffens, 732 N. Fillmore St., plans by J. Roy Smith, 310 Blackburn Bldg., garage unit, $40,000.

Tex., Baytown—LABORATORY—Humble Oil & Refining Co., Baytown, 1 story, brick, concrete laboratory bldg. $45,000.

Tex., Carthage—MEASURING STATIONS—United Gas Pipe Line Co., 1525 Fairfield Ave., Shreveport, La., 2 measuring stations here, at end of 140 mi. pipeline running to Monroe, La. $100,000.

Tex., Dallas—REPAIR SHOP—Ben Griffin Auto Co., 1601 S. Ervay St., plans by J. H. Adams, 1612 Forrest St., mechanical repair shop. $50,000.

Tex., Denison—PLANT—Denison Storage Co., Denison, egg breaking and drying plant. $60,000.

Tex., Houston—PLANT—Pecan Shellers Co-operative, 236 W. 17 St., plans by V. J. Newman, 2410 Austin St., 40x100 ft., structural clay tile, rein.-con., etc. plant addn. $45,000.

Tex., McAllen—PLANT—Rado Refining Co., McAllen, new eythl lead gasoline plant, $60,000.

Alta., Bitumount — PLANT — Alberta Oil Sands, Ltd., Bitumount, preparing plans plant. About $50,000.

Alta., St. Paul—FOUNDRY—St. Paul Foundry, Inc., St. Paul, foundry, etc. $40,000.

B. C., Bralorne—MINING DEVELOPMENT—Taylor Bridge River Mines, Ltd., c/o Bralorne Mines, Ltd., 55 Burrard St., Vancouver, development of properties in Gun Creek areas. $150,000.

B. C., Grand Forks—SAWMILL—Grand Forks-Sawmills, Ltd., Grand Forks, sawmill, etc. $50,000.

B. C., Vancouver—MILL—Sweeney Cooperage, Ltd., 49 Smythe St., cooperage mill, $40,000.

N. W. T., Yellowknife—DIAMOND DRILLING—Lex Indine Gold Mines, Ltd., c/o Leta Explorations, Ltd., Yellowknife, surface work and diamond drilling in Indian Lake Area. $75,000.

Ont., Brockville—PLANT—Phillips Electrical Works, Ltd., Kingston, plans by J. C. Day, 1502 W. Ste. Catherine St., Montreal, Que., plant exten. $100,000.

Ont., Hamilton—PLANT—Canadian Aniline & Extract Co., Ltd., 35 Cammon E., Hamilton, plant remodeling. $40,000.

Ont., Hamilton—PLANT—Hamilton Macaroni Co., Inc., 14 George St., mfg. plant. $40,000.

Ont., Sarnia—PLANT—Imperial Oil, Ltd., 56 Church St., Toronto, experimental building at refinery. $57,000 incl. equip.

Ont., Sault Ste. Marie—WAREHOUSE—Ogilvie Flour Mills Co., Ltd., Sun Life Bldg., Montreal, Que., plans by C. R. Tetley, 65 St. Sulpice Rd., Westmount, Que., 50x100 ft., rein.-con., and wood truss warehouse. About $45,000.

Ont., Thorold — PLANT — Chemol Corp., Ltd., Thorold, chemical, etc., mfg. plant. $40,000.

Ont., Toronto—FACTORY—Acme Carbon & Ribbon Co., Ltd., 260 W. Richmond St., factory addn. $40,000.

Ont., Toronto—PLANT—Angelo Petroleum, Ltd., 75 Summitt Ave., plant exten. $50,000.

Ont., Toronto—FACTORY—Allied Fasteners, Ltd., c/o M. Gassyt, 116 Blantyre Ave., factory. $40,000.

Ont., Toronto — PLANT — Argo Block & Cement Tile Co. Ltd., c/o H. R. Watson, Port Credit, cement block and tile mfg. plant. $40,000.

Ont., Toronto—PLANT—Bradshaw & Sons, Ltd., 507-11 College St., plans by Page & Steele, 20 St. Clair Ave. W., 1 story, 150x150 ft., brick plant, concrete fdn., $175,000.

Ont., Toronto—PLANT—Consumers Gas Ltd., 19 Toronto St., steam plant. Over $200,000. P. E. Savage, 4853 Patricia St., engr.

Ont., Toronto—PLANT—Krum, Young & Co., engr., 67 Young St., soon lets contract plant addn., Commissioner St., for Gair Co., Ltd., 272 Bay St. About $200,000. CD 12/11—ENR 12/14.

Ont., Welland—PLANT—Thermoid Mould & Tool Works, Ltd., c/o R. B. Law, K. C., mould and tool mfg. plant. $40,000.

Ont., Weston—FACTORY—Canada Cycle & Motor Co., Ltd., Lawrence Ave. W., plans by E. I. Davidson, 36 Toronto St., Toronto, factory addn., alterations. About $45,000.

★**Que., Shawinigan Falls**—PLANT—Canadian Resins & Chemicals, Ltd., 107 Craig St. W., Montreal, preparing plans plant extens., Blvd. Cedres. $270,000, equipped $1,000,000.

Que., Shawinigan Falls—PLANT—Shawinigan Water & Power Co., Ltd., 107 W. Craig St., Montreal, 5 story, 153x282 ft., concrete frame plant exten., concrete fdn. $250,000.

Que., Sherbrooke—PLANT—Christlea Aircraft Co., Ltd., London, Eng., assembly plant, $150,000.

BIDS ASKED

Bids Asked About April 2

Pa., Phila.—PLANT—Service Supply Corp., H. C. Shaw, pres., 20 and Venango St., rebuilding mfg. plant. $100,000-$150,000. CD —12/22—ENR 12/28.

Bids Asked April 2

N. J., Bayonne—PLANT—Epple & Kahrs, archts., 15 Washington St., Newark, 1 story, 80 x 139 ft., brick precision casting bldg., for International Nickel Co., 15 Oak St., $45,000.

Bids Asked April 4

Md., Elkton—CHARGING STATION, etc.—Triumph Explosives, Inc., Elkton, battery charging station, concrete loading platform, storage, macadam paving, concrete runway, ramp and aprons, carpentry shop and alterations to various bldgs. Buckler & Fenhagen, 325 N. Charles St., Baltimore, archts. Whitman, Requardt & Assoc., 1204 St. Paul St., Baltimore, engrs.

Bids Asked

Ill., Chicago—FACTORY—Fox & Fox, archts., 549 W. Randolph St., 1 story, 60x330 ft., brick, concrete, steel factory addn., for Bastian Blessing Co., 4201 W. Peterson Ave. CD 3/19—ENR 3/22.

Mass., Indian Orchard—FACTORY—Nixon Specialty Co., 36 Berkshire St., 1 story, 40 x 50 ft., and 50 x 122 ft., brick, concrete factory, Berkshire St. $40,000. E. P. Dorgan, 833 Chestnut St., Springfield, archt.

Tex., Garland—AIRPLANE PLANT, etc.—Luscombe Aircraft Corp., Bear Tavern Rd., Trenton, N. J., plant mfg. airplane parts, $225,000; runways and all ground work for airport, $50,000; hangars, $50,000; sanitary sewer line, $25,000; e.i. water pipeline, over $15,000.

Wis., Milwaukee—MACHINE SHOP, etc.—Brimeyer, Grellinger & Rose, archts., 730 N. Jackson St., Zone 2, 1 and 2 story, 100 x 130 ft., part bsmnt., 100 x 130 ft., steel, brick, cut stone machine shop and office, concrete fdn. for Owner, c/o Archts.

LOW BIDDERS

Tex., Bay City—PLANT—Bay City Rice Drying Co., Bay City, Mar. 15, rice drying plant, from W. D. Peck, Citizens State Bank Bldg., Houston, **$148,718**; electrical work, from The Electric Shop, 129 Main St., Baton Rouge, La., **$32,011**. CD 3/16—ENR 3/22.

CONTRACTS AWARDED

Calif., Glendale—FACTORY—Avisea Radio Corp., 703 W. Ivy St., 2 story, 100x140 ft., reinforced brick factory, 701 W. Ivy St., to Buttress & McClellan, 1013 E. 8 St., Los Angeles, **$50,000**. J. H. MacDonald, 1013 E. 8 St., Los Angeles, archt.

Calif., Los Angeles—WAREHOUSE—J. J. Sugarman-Rudolph Co., 415 E. 9 St., 1 story, 86x364 ft., rein.-con., warehouse addn., to Structon, 8442 Santa Monica Blvd., approx. **$100,000**. D. Levy, 410 Riverside Dr., New York, N. Y., archt.

Ill., Chicago—FACTORY—Stein Bros. Mfg. Co., 231 W. Green St., 1 story, 125x310 brick, concrete, steel factory, to H. Kaplan Co., 751 N. Paulina Ave. Est. **$100,000**. A. Epstein, 2001 W. Pershing Rd., engr.

Ill., Monee—FACTORY—Cardox Corp., 307 N. Michigan Ave., Chicago, 1 story, brick factory addn. and remodeling, to J. Mitterman, 2848 W. 59 St., Chicago, **$50,000**. C. D. Faulkner, 307 N. Michigan Ave., Chicago, archt.

Ill., Springfield—PLANT—Gothard Mfg. Co., 1300 N. Ninth St., 1 story, 50x200 ft. brown face plant for electronic devices, brick concrete fdn., to R. B. Evans Constr. Co., 401 N. Walnut St. Est. over **$40,000**. Awarded 3/20. H. R. Helmle, First National Bank Bldg., archt.

La., Welsh — PLANT — Kleinman Bros., Welsh, 100,000 bu. rice drying plant and concrete storage, to Jno. V. Boland Constr. Co., 2715 Dalton St., St. Louis, Mo., **$386,000**. Central Eng. Co., c/o A. Van Zyverden, Larendon Bldg., 1210 Texas Ave., Houston, Tex., engr. CD 2/27—ENR 3/1.

Mich., Detroit—PLANT—Detroit Sales Engineering Co., 3048 E. Outer Dr., brick, steel, concrete steel mfg. plant, to Cooper Constr. Co., 572 Maccabees Bldg. Est. **$60,000**.

Mich., Detroit—FACTORY—Todd Steel Corp., 15843 Second Blvd., 1 and 2 story, brick, steel, concrete factory, to O. W. Burke Co., 1001 Fisher Bldg. Est. **$100,000**. Andrew Morrison, 3641 Buckingham St., archt.

Mo., St. Louis—LAUNDRY—Wilmes Linen Service Co., 4346-50 Finney Ave., Zone 13, 1 story, 48 x 70 ft., steel, brick, rein.-con. slab, laundry addn., rein.-con. fdn., to W. C. Harting Constr. Co., 722 Chestnut St., Zone 1. Est. **$40,000** with equip. F. R. Nauman, 4710 Washington Ave., Zone 8, archt.

N. J., Bayonne—PLANT—Western Electric Co., 100 Central Ave., Kearney, extensive interior alterations to 3 oldgs. for mfg. space, etc., 717 Ave. A, to Frank Briscoe Co., Inc., 287 S. 19 St., Newark, **$50,000**.

N. J., Belleville—WAREHOUSE—Liquid Carbonite Corp., 1881 Bway., New York, N. Y., 1 story, 162x207 ft., brick, steel warehouse, to Walter Kidde Co., 140 Cedar St., New York, N. Y. Est. **$80,000**.

N. J., Jersey City—WAREHOUSE ALTERATIONS—Western Electric Co., 100 Central Ave., Kearny, interior alterations 4 story, rein.-con. warehouse for mfg. space, Communipaw Ave., to Frank Briscoe Co., Inc., 287 S. 19 St., Newark, **$50,000**.

N. J., Linden—BOILER HOUSE, etc.—Standard Oil Co. of N. J., Bayway Refinery, Linden, boiler house, etc., own forces, **$250,-000**; installing, constructing 300,000 lb. boiler at refinery, to The Riley Stoker Corp., 103 Park Ave., New York, N. Y., **$350,000**.

INDUSTRIAL BLDGS. (Contracts Awarded, Cont'd.)

N. Y., New York—WAREHOUSE—Underhill Realty Corp., 4754 3 Ave., altering 9 story storage warehouse, 4754-4758 3 Ave., to Arthur I. Kraft, Inc., 17 E. 42 St., Zone 18, Est. **$70,000.** Bids 1/25. G. S. Kingsley, 101 Park Ave., Zone 17, archt.

Ore., Parkdale—PLANT—Duckwall Bros., 3 and Cascade Sts., Hood River, 1 story, 88x200 ft. fruit packing plant, to Baldwin & Wheir, Hood River, **$45,000.** Bids 3/12. CD 12/29—ENR 1/4.

Pa., Lester — FACTORY — Westinghouse Elect. & Mfg. Co., Maloney Bldg., Blvd. of Allies, Pittsburgh, remodeling factory, separate contracts. **$320,000.** H. L. Heilman, archt. and L. C. Mechling, engr., both Maloney Bldg., Pittsburgh.

Pa., York—FACTORY—Bon Ton Foods Co., L. Lewis, mgr., Richland and College St., repairing fire damaged factory, to R. S. Noonan, Lehmayer Bldg., **$50,000.** CD 2/26—ENR 3/1.

Pa., York—DAIRY—Pennsylvania Dairies, Inc., H. N. Forrey, vice-pres., 1414 East Market, dairy addns., to I. Reindollar & Sons, 35 North George St., **$50,000.**

Tex., Fort Worth — WAREHOUSE — G. Leviton, 920 W. Weatherford St., 1 story, 75x180 ft., steel, sheet metal, concrete warehouse, force account. **$40,000.** CD 3/14—ENR 3/22.

Tex., Galveston—PLANT—Black Hardware Co., 2217 Strand St., concrete, steel plant unit and rehabilitation shop, to Wm. Roitsch & Son, 2102 44 St., approx. **$45,000.** R. R. Rapp, Guaranty Bank Bldg., archts.

Tex., Houston — WAREHOUSE — Republic Supply Corp., Petroleum Bldg., warehouse, to W. S. Bellows Constr. Co., 718 N. Everton St., approx. **$50,000.**

Tex., Johnson City—PLANT—Johnson City Locker Plant, Inc., c/o Dr. E. Keley & Associates, Johnson City, frozen food locker and processing plant, force account, Approx. **$45,000.** Bids 1/15. Paul G. Bentley & Co., 407 Burt Bldg., Dallas, archts. CD 12/22—ENR 12/28.

★**B. C., South Westminster**—PLANT—Gypsum Lime & Alabastine Co. of Canada, Ltd., 509 Richards St., plant, own forces. Est. **$500,000.**

Que., Shawinigan Falls—PLANT—Canadian Resins & Chemicals, Ltd., c/o Shawinigan Water & Power Co., Ltd., 107 Craig St. W., Montreal, 1 to 5 story, 153 x 282 ft., rein.-con., structural steel plant addn., to Shawinigan Engineering Co., Ltd., 107 Craig St. W., Montreal, about **$270,000.** CD 3/14—ENR 3/22.

UNCLASSIFIED

PROPOSED WORK

Arkansas and Missouri—POWER LINE—Arkansas-Missouri Power Corp., Blytheville, Ark., rebuilding 45 mi. 33,000 volt power line between Rector, Ark., and Portageville, Mo. $168,800.

Calif., San Pedro—YARD WORK, etc.—Todd Shipyards Corp., P. O. Box 231, San Pedro, yard work, moving several bldgs., constr. asphaltic concrete paving and wire fencing, over $25,000; fdns. for boiler and compressor houses rein.-con. and piping, $45,000. J. H. Davies, Ocean Center Bldg., Long Beach, engr.

Kan., Harper—AIRPORT—City, C. C. Brown, mayor, City Hall, $25,000 bond election Apr. 3, airport.

Louisiana — DRILLING and BOILER BARGES, etc.—The Texas Co., 919 St. Charles St., New Orleans, installing drilling and boiler barges, clusters of piles, walkways, safety lines, Jefferson Parish.

Louisiana—GAS LINE—Southern Natural Gas Co., City Natl. Bank Bldg., Shreveport, 125 mi. looping main gas line between Logansport and Monroe. $375,000.

La., Hammond—PARK—City, establishing, maintaining memorial park within business district. $25,000. Funds and 25 acre site donated.

La., New Orleans—AIR CONDITIONING SYSTEM—Consolidated Vultee Aircraft Corp., 7020 Franklin Ave., air conditioning sys. on first floor of Administration bldg.

Md., Hagerstown — HANGAR — Fairchild Airplane Corp., Hagerstown, soon lets contract flight test hangar.

Mo., Springfield—AIRPORT—City, H. B. Carr, mayor, voted $150,000 bonds, airport completion. CD 1/31—ENR 2/8.

Montana—POWER LINES — Beartooth Electric Cooperative, Red Lodge, soon lets contract 82.77 mi. power lines, REA Proj. Mont. 5019-B-1, Carbon, Stillwater and Sweet Grass Counties, $130,000. Plans deposit $25. T. Karkainen, Armory Bldg., Helena, engr. CD 2/21—ENR 3/1.

†**Mont., Billings**—LANDING SYSTEM—Civil Aeronautics Admin., Smith Tower Annex, 2 and Yesler Sts., Seattle 4, Wash., postponed bids to have been opened Mar. 12, localizer, boundary marker, etc., at municipal airport. Will readvertise. CD 2/20—ENR 3/1.

†**Neb., Sidney**—TRACKAGE—U. S. Eng., 909 17 St., Denver, Colo., addnl. trackage at Sioux Ordnance Depot.

N. J., Cape May—BEACH PROTECTION, etc.—City, I. Grant Scott, mayor, City Hall, beach protection and reconstructing storm damage, $400,000.

Ore., Portland—VAULTS—Portland Crematorium, 6705 S.E. 14 St., completion vaults, $25,000.

Texas and Louisiana—NATURAL GAS PIPELINE—Arkansas Natural Gas Corp., Slattery Bldg., Shreveport, La., natural gas pipeline carrier, between Carthage, Tex., and Shreveport, La. Over $100,000.

Texas and Louisiana—GAS LINE—Southern Natural Gas Co., Logansport, La., and City Natl. Bank Bldg., Shreveport, La., 30 mi. 14 in. gas pipeline between Carthage, Tex., and Logansport, La. $100,000.

Texas and Louisiana—TELEPHONE LINE—United Gas Pipe Line Co., 1525 Fairfield Ave., Shreveport, La., 140 mi. pole telephone line between Carthage, Tex., and Monroe, La., parallel to gas pipeline. $75,000.

★†**Texas**—GAS PIPELINE—Tennessee Gas & Transmission Co., Commerce Bldg., Houston, approx. 95 mi. 16 in. natural gas pipeline carrier from point near San Miguel to Nueces Co., connecting with main line running to West Virginia, $2,202,600. Defense Plant Corp., will finance.

Tex., Athens—OIL PIPELINE—Merrimac Oil Co., Athens, 3 in. welded joint crude oil pipeline, $25,000.

†**Tex., Denton** — AIRPORT — Civil Aeronautics Admin., P. O. Box 1689, Fort Worth, rejected bids Feb. 15, airport imprvs., Prop. 4-45-2-2967. CD 2/21—ENR 3/1, under LB.

★†**Tex., Kelly Field (br. San Antonio)**—AUTOMATIC SPRINKLER SYSTEMS—U. S. Eng., Fort Sam Houston, installing automatic sprinkler sys., at San Antonio Air Depot, $896,981.

†**Tex., McKinney**—FIRE SPRINKLER, etc.—U. S. Eng., 231 W. Main St., Denison, fire sprinkler, fire alarm sys., at Ashburn General Hospital. Over $50,000.

Wash., Seattle—PIER, etc.—Todd-Pacific Shipyards, 2400 11 Ave. S, Zone 4, pier and dredging, incl. piling, $144,450.

Wash., Spokane—TRACK, etc.—Northern Pacific Ry. Co., B. Blum, ch. engr., 175 E. 5 St., St. Paul, Minn., constructing 16,597 ft. track and 21 turnouts. $62,480.

BIDS ASKED

Bids Asked April 3

Mass., Chatham—PIER—Town Bd., Selectmen, Town Hall, Contr. 1, 105 ft. fish pier, 50 ft. wide, wood sheet piling, at foot of Barcliff Ave. To exceed $25,000. Edward Sears Read & Assoc., 177 State St., Boston, archts. H. E. Bailey, 177 State St., Boston, engr. CD 3/12—ENR 3/15.

N. Y., Brooklyn—PIER SHED PAINTING—At office executive director The Port of New York Auth., H. S. Cullman, chn., 111 Eighth Ave., New York, Zone 11, painting east and west walls of Columbia St. Pier Shed, Contr. GT-13. Plans deposit $5.

Bids Asked April 5

†**Me., Brunswick**—INDOOR STANDS, etc. Federal Works Agency, 101 Park Ave., New York, N. Y., indoor stands, bleachers, Me. 17166.

Bids Asked April 6

Illinois—RURAL ELECTRIC LINES—Clay Electric Cooperative, Inc., L. F. Brissenden, pres., Flora, exten. approx. 27.6 mi. rural electric lines, Clay Co. Plans deposit $5. Michael Drazen & Associates, 4903 Delmar Blvd., St. Louis 8, Mo., engrs. CD 1/23—ENR 1/25.

Bids Asked April 18

†**Mich., Sault Ste. Marie**—PIER—U. S. Eng., 700 Union Guardian Bldg., Detroit, pier exten., 1,200 ft. timber cribbing and concrete superstructure. CD 2/23.

Bids Asked April 19

†**Wis., Janesville**—LIGHTING—Civil Aeronautics Admin., 608 S. Dearborn St., Chicago, Ill., airport lighting, incl. 51 ft. beacon tower and other work. Plans deposit $10. Extended date. CD 3/7.

Bids Asked

Tex., Carthage—LOADING RACKS—Lone Star Gas Co., 1915 Wood St., Dallas, loading racks, facilities for recycling plant area, $75,000. CD 2/16—ENR 3/1.

LOW BIDDERS

†**Calif., Benicia**—HARD STANDING AREA—U. S. Eng., 74 New Montgomery St., San Francisco, hard standing area, Benicia Arsenal, Job No. 1956, from Fredrickson & Watson Constr. Co., 873 81 Ave., Oakland, **$169,689.**

★†**Mich., Sault Ste. Marie**—PIER—U. S. Eng., 700 Union Guardian Bldg., Detroit, Mar. 21, reconstructing Brady Pier at South Canal, St. Marys Falls, from Merritt-Chapman & Scott, 17 Battery Pl., New York, N. Y. **$674,268.** CD 3/2—ENR 3/8.

Mo., St. Louis — COURT OF HONOR — City, M. M. Kinsey, pres. Bd. Pub. Serv., and St. Louis World War 2 Memorial Com., P. S. Miravalle, chn., City Hall, 12 and Market Sts., Zone 1, Mar. 20, Court of Honor, [illegible] Memorial Plaza, in blocks bounded by [illegible] 14, Market and Chestnut Sts., from Robert Paulus Constr. Co., 3457 Morganford Rd., Zone 16, **$47,176.** Est. $[illegible]. CD [illegible] ENR 3/1.

CONTRACTS AWARDED

★**Alabama**—RAILROAD WORK—Atlantic & St. Andrews Bay Railway Co., A. A. Winter, ch. engr., Dothan, relaying, rebering, resurfacing 80 mi. main line, Royce Kershaw & Co., P.O. Box 21, Montgomery, **$800,000.**

†**Calif., Benicia**—STREET LIGHTING SYSTEM—U. S. Eng., 74 Montgomery St., San Francisco, Zone 19, street lighting sys., Benicia Arsenal, Contr. W-04-203-eng-1776, to Collins Electrical Co., 729 E. Miner St., Stockton, **$56,912.**

†**Calif., Maywood**—AIRFIELD PAVING—U. S. Eng., 751 S. Figueroa St., Los Angeles, Zone 14, paving Army Air Field Supply Depot, Contr. W-04-353-eng-1367, to F. D. Chadwick, Lynwood, **$109,776.**

Calif., Wilmington—WHARF—Consolidated Steel Corp., 5700 S. Eastern Ave., Los Angeles, wood wharf at Los Angeles Harbor, to Pugh Constr. Co., 1260 Alameda St., approx. **$100,000.**

†**Md., Edgewood Arsenal**—TESTING FACILITIES—U. S. Eng., Standard Oil Bldg., Baltimore, testing facilities, Contr. W-18-020-eng-784, to Fred J. Brotherton, Inc., 161 Atlantic Ave., Hackensack, N. J., **$35,300.**

Neb., Lincoln—COOLING TOWER—City, T. H. Berg, clk., cooling tower at power plant, to The Marley Co., Inc., 3001 Fairfax Rd., Kansas City, Mo., **$41,015.** Bids 2/21. D. L. Erickson, City Hall, city engr.

†**N. J., Fort Dix (br. Trenton)**—SPRINKLER and HEATING SYSTEM—U. S. Eng., 120 Wall St., New York 5, N. Y., sprinkler and heating sys., to Central Automatic Sprinkler Co., 247 E. Ashmead St., Phila., Pa. **$79,748.** CD 3/2.

†**O., Marion**—SPRINKLE SYSTEMS, etc.—U. S. Eng., 522 U. S. Post Office and Courthouse, Cincinnati, installing automatic sprinkler and water alarm sys., Scioto Ordnance Plant, Contr. W-33-015-eng-590, to Automatic Sprinkler Corp. of America, Perry Payne Bldg., Cleveland, Zone 13, **$46,793.**

Okla., Oklahoma City—PIPELINE—Phillips Petroleum Co., Bartlesville, 7 mi. steel pipeline, to Western States Constr. Co., 1165 S.E. 29 St., approx. **$50,000.**

R. I., Newport—BEACH REPAIRS—Sporting Rock Beach Assn., c/o Noel & Miller, archts., 6 Catherine St., rebuilding bathhouses, pavilion, walks, terraces, etc., hurricane damage, to O. Ahlberg & Sons, 9 Friendly Rd., Cranston. Est. **$100,000.** CD 3/13—ENR 3/15.

†**Tex., Benbrook (br. Fort Worth)**—AUTOMATIC SPRINKLER SYSTEM— U. S. Eng., 231 W. Main St., Denison, furnishing, installing automatic sprinkler sys., Aircraft Plant 4, Contr. W-41-242-eng-368, to Texas Automatic Sprinkler Co., 2330 Summer St., Dallas, **$51,134.**

†**Tex., Fort Bliss**—AUTOMATIC SPRINKLER SYSTEMS—U. S. Eng., Albuquerque, N. M., furnishing, installing addnl. automatic sprinkler sys., William Beaumont General Hospital, Contr. W-29-005-eng-327, to Rockwood Sprinkler Co., Audubon Bldg., New Orleans 16, La., **$83,973.**

†**Va., Camp Pickett (br. Blackstone)**—AUTOMATIC SPRINKLER SYSTEMS—U. S. Eng., Fort Norfolk, automatic sprinkler sys., Contr. W-44-110-eng-403, to Grinnell Co., Inc., American Bldg., Richmond, **$110,583.**

†**Va., Fort Story (br. Virginia Beach)**—AUTOMATIC SPRINKLER SYSTEMS—U. S. Eng., Fort Norfolk, automatic sprinkler sys., Contr. W-44-110-eng-405, to Grinnell Co., American Bldg., Richmond, **$39,468.**

†**Va., Norfolk**—PIER—Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., rebuilding Pier 38, Wharf St. Helena Annex, Norfolk Navy Yard, to Tidewater Constr. Corp., 547 Front St., Norfolk 1, **$402,710.**

Washington — TRACK LINES — Chicago, Milwaukee, St. Paul & Pacific Ry., W. H. Penfield, ch. engr., Union Station, Chicago 6, Ill., rehabilitation, sloping and ditching track-lines from Cedar Falls to Maple Valley, to Morrison-Knudsen Co., 319 Bway., Boise, Idaho. Est. **$80,000.**

Washington — RAIL LINE IMPROVEMENTS—Spokane, Portland & Seattle Ry. Co., A. J. Witchell, ch. engr., 1101 N.W. Hoyt St., Portland 7, Ore., draining, ditching, other imprvs., on rail lines between mile posts 85 and 106, to Morrison-Knudsen Co., 319 Bway., Boise, Idaho. Est. **$41,000.**

Wash., Seattle—SPRINKLER SYSTEM—Great Northern Ry. Co., C. M. Nye, ch. engr., 175 E. 4 St., St. Paul, Minn., installing sprinkler sys., under pier at 1477 Alaskan Way, to Viking Automatic Sprinkler Co., 1120 5 Ave. S., Zone 4, **$57,000.**

Proposal Advertisement see p. 23